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UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE
NATIONAL PLANT MATERIALS CENTER

Beltsville, Maryland

1969 ANNUAL REPORT



CRIDER MEMORIAL GARDEN
OF CONSERVATION PLANTS

United States Department of Agriculture
Soil Conservation Service
National Plant Materials Center
Beltsville, Maryland

1969 ANNUAL REPORT

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United States Department of Agriculture
 Soil Conservation Service
 National Plant Materials Center
 Beltsville, Maryland

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H. W. Everett.....Manager
 Frederick B. Gaffney.....Soil Conservationist
 Gary V. Schultz.....Soil Conservationist
 Robinson P. Abbott.....Biological Technician
 Richard C. Russell.....Biological Technician
 William T. Barnes.....Nursery Worker
 Eugene O. Jones (WAE).....Nursery Worker
 Helen M. Chamberlin.....Clerk-Stenographer

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INTRODUCTION

This report covers the operations of the National Plant Materials Center at Beltsville, Maryland for the calendar year 1969. Some of the major functions of this center are the assembly of seeds and/or plants from world-wide sources for the SCS plant materials program; initial increase of assembled material; exchange of conservation plant materials with other countries; and arrangements for verification of identity of plant material.

Distribution of seed and other plant material is made to the SCS field plant materials centers and specialists, other agencies of the Department of Agriculture, state Experiment Stations, and plant scientists. A total of 1,135 packets of seed were sent to SCS plant materials centers in 1969; distribution to other agencies totaled 483 packets; and 632 packets were distributed to 28 different foreign countries. Heaviest foreign distribution was made to Chile (158), Mexico (105), Venezuela (84), Argentina (61), New Zealand (42), and Canada (34).

Assembly of new plant materials is vital to the plant materials program. New accessions totaled 435 in 1969. Distribution of these accessions to the field plant materials centers will be carried out as soon as possible.

1969 ACTIVITIES

The NPMC participated in the National Lawn and Garden Week Show at the USDA Administration Building in Washington, D.C., in March. Plants used in school conservation plantings were exhibited. Plants for wildlife food and cover and groundcovers attracted nature lovers and individuals with problem sites. All opportunities to present plant materials information to the public should be used, as people are interested in and have need of stabilization and conservation plants.

Work under the cooperative agreement between the State Roads Commission of Maryland and the USDA Soil Conservation Service is proceeding on schedule. Trials involving seedling survival, direct mechanical seeding of woody species and hydroseeding of woody species are being conducted. An interim report covering the first three years of the project was prepared in July 1969, but since information is not complete, a very limited number of copies was printed. When the project is completed, all technical data will be released by the State Roads Commission and the Soil Conservation Service.

The Big Flats, Cape May, Quicksand and Coffeeville plant materials centers are cooperating with the NPMC in gathering information on about 90 accessions of Salix spp. for a report to be compiled at Beltsville. Information reported should be useful in selecting species for further trials on streambank, pond and riverbank plantings.

H. W. Everett, NPMC Manager, attended the Northeast Seed and Plant Allocation Meeting at Quicksand, Kentucky in October. Allocations of materials and program planning were the main topics discussed. A review of the Quicksand PMC's rod row testing area and production fields was made.

An updated listing of interest in genera and species by plant materials centers was started at the NPMC in 1969. When completed, the listing should enable the NPMC to better serve the field centers.

The Crider Memorial Garden of Conservation Plants continues to be of interest to almost all visitors to the NPMC, and to people touring the Agricultural Research Center. Visitors enjoy seeing conservation plants from other parts of the U.S.

H. W. Everett, F. B. Gaffney, and G. V. Schultz completed courses at either the University of Maryland or the USDA Graduate School during the fall of 1969.

The Center again cooperated with the summer work program of the Youth Opportunity Corps, adding three boys and one girl to the staff for the summer months. The boys rendered valuable assistance in seed collection, grounds maintenance and setting up germination tests, etc., while the girl provided assistance to the secretary in routine office duties, filing and typing. An award for superior performance was received by one of the boys, Norman Schiferl, at the close of the summer.

New employees added to the staff during the past year are William T. Barnes, Nursery Worker, a full-time career employee, and Eugene O. Jones, Jr., a student at the University of Maryland, employed on an intermittent basis.

Mrs. Helen M. Chamberlin, secretary at the Center, received the Service's Certificate of Merit for outstanding performance during Fiscal Year 1969.

Two Plant Materials workshops for District Conservationists were conducted at the NPMC by Curtis Sharp, PMS, New Jersey, and Harold Stephens, Agronomist, Maryland. Another workshop for District Conservationists from northern Virginia was headed by Mr. Everett.

WEATHER DATA

1969

National Plant Materials Center
Beltsville, Maryland

	Temperature - °F.				Total Precipitation (inches)
	Low	High	Mean Low	Mean High	
January	5	56	22	39	1.66
February	13	50	25	41	1.50
March	18	68	29	43	1.18
April	18	88	41	68	1.74
May	34	92	49	77	2.98
June	48	95	61	85	3.23
July	56	96	66	86	8.41
August	50	91	63	84	9.27
September	38	90	54	78	1.31
October	20	84	36	67	0.96
November	16	65	32	53	2.15
December	14	59	24	41	6.43
Total					40.82

Data furnished by: Nutritional Management Investigations
Dairy Cattle Research Branch, ARS

NOTES & COMMENT

GRASSESAgropyron caninum (L.) Beauv.

Origin of this species was discussed in the 1968 NPMC Annual Report.

One accession, PI-315492, was received from the USSR as Roegneria* canina, a synonym. The plants performed poorly here. They had few stems and leaves, and little vigor. A few seed heads to 22 inches were produced during the first growing season, but all plants died the following winter.

*Roegneria is a synonym for Agropyron. In "The Flora of Russia", Roegneria, with one exception, refers only to perennial bunchgrasses.

Agropyron cristatum (L.) Gaertn.

fairway wheatgrass

Two additional accessions received from the USSR were grown - PI-314598 and 314599. PI-314598 performed better than the other, but neither did well. Both had few leaves and poor vigor.

Agropyron desertorum (Fisch. ex Link) Schult.

crested wheatgrass

Only one new accession was grown. PI-314603 from the USSR had few stems and very few leaves. Seed heads were 24 inches tall. The summers here at Beltsville seem very detrimental to these plants.

Agropyron elongatum (Host) Beauv.

tall wheatgrass

PI-315352 from the USSR performed well. Plants had abundant stems, with seed heads to 50 inches; leaves were moderately abundant and cauline. Vigor has been very good and both fall and spring regrowth abundant.

Agropyron fibrosum Nevski

fibrous wheatgrass

A perennial bunchgrass with stems 40-70 cm., endemic to the middle European portion of the USSR and to west central Siberia. It is of little economic value there, but does grow in the pastures; blooms in June and July. Species was first described from the Karkaralian Mtns.

One accession from the USSR was grown. The first summer weakened the plants so that only a few lived - the second summer killed the remaining plants. Leaves were never more than 5 inches tall and no seed was collected. This one requires a cooler climate. Number is PI-315493.

Agropyron intermedium (Host) Beauv.

intermediate wheatgrass

Five accessions were grown. Two are from the USSR, PI-315354 and PI-315355; three were contaminants found in other Agropyron introductions. These were numbered BN-18876, BN-18877 and BN-18878; all are open-pollinated single clones. All these wheatgrasses did well, but PI-315354 had more total forage material than the others. All had early, abundant spring growth.

GRASSES

Agropyron cf. leptourum (Nevski) Grossh. thin-tailed wheatgrass

This is a perennial bunchgrass with stems 40-75 cm. tall, endemic to stony mountain valleys of the Caucasus and southern Transcaucasus. The species was described from Mt. Chapan-dagh, which is part of the Caucasus Mountain range. Herbarium type is at Leningrad. A. leptourum belongs to the same small series of species as A. praecaespitosum.

PI-314199, received from the USSR as an undetermined Agropyron species, has been barely surviving for three years, and only a trace of seed has been collected. The plants finally died in the summer of 1969. Seed heads were 26 inches tall, and plants were almost entirely devoid of leaves, which dry up completely while dormant during the summer heat.

Agropyron pectiniforme Roem. & Schult.

The 1968 NPMC Annual Report gives background of this species.

Four new accessions grown were PI-315356 through 315359, all from the USSR. All are cool hardy perennials. PI-315356 had stooling bunches to shortly rhizomatous plants; heads were 20 inches tall, and the accession was a very poor seed producer. The other accessions were tufted bunchgrasses. Best accession was PI-315357 which had moderately abundant stems and few leaves, and which was the only one with good vigor during the 1969 growing season.

Agropyron praecaespitosum Nevski

This species has at least two synonyms - Roegnaria oschensis (Roshev.) Nevski, and Agropyron oschense Roshev. It is a perennial with culms 60-100 cm. tall; spikes linear, slightly glaucous, green or greenish purple; flowers June-July. Occurs on mountain river valleys and woody slopes in central Asia and southeastern Russia. Type specimen is at Leningrad.

PI-314622 from the USSR is a cool hardy perennial bunchgrass, with few coarse and erect stems, few basal and cauline leaves. At maturity, seed heads were 30 inches tall, leaves 16 inches tall, with spread of 10 inches. Heat in the summer of 1968 caused severe damage to many plants, which resulted in poor winter survival.

Agropyron sibiricum (Willd.) Beauv.

Siberian wheatgrass

The species was introduced from Russia and has become naturalized in some parts of the United States. It is best suited to dry soils. (Hitchcock)

Eight accessions were grown: PI-313961, and PI-315361 through 315367, all from the USSR. All matured within a week of each other.

The best, PI-315365, had abundant erect stems and obtained a size of 40"-18" x 18". Vigor was excellent, although the population was somewhat variable in lodging and fall regrowth. Disease problem was light.

PI-315362 was highly variable.

Several accessions lost plants due to summer dormancy and poor fall regrowth.

GRASSES

Agropyron trachycaulum (Link) Malte slender wheatgrass

Normal distribution of this species in the United States ranges from Alaska, south to the mountains of West Virginia, Missouri, New Mexico and California (Hitchcock).

One accession from the USSR, PI-315494, was received as Roegneria trachycaulon (Link) Nevski, a synonym. The plants are not happy in this hot, humid area. Summer heat causes almost complete dormancy and fall recovery is generally poor. Stems were few to 24 inches; leaves basal and cauline to 15 inches. Vigor as well as size of plants was variable and seed production poor.

Agropyron ugamicum Drob. Ugamicum wheatgrass

Species grows in the rough terrain of Middle Asia on dry and desert mountain pastures with cold winters and hot summers. It was first described in the Ugamica River valley, and is of the Tashkent type of southern USSR. As it produces a large vegetative mass, it is a valuable forage crop.

Two accessions from the USSR, PI-314204 and 314631, were received as Agropyron sp. These are tufted perennials with few stems and leaves, head heights ranging from 22 inches to 38 inches. The species is short-lived at Beltsville, dying during the second summer. Spikelets should be awnless. PI-314204 set very few heads, and 314631 set one head but no seed.

Agropyron spp.

Two accessions received from the USSR, PI-314195 and 314630, are listed as undetermined species and have not as yet been identified. Both accessions have been growing at the NPMC for three years, and still have not set any seed heads. Leaves are abundant and basal, 8 inches to 10 inches tall. Both accessions have shown some leaf spot disease. They look and act like Brachypodium species here.

Alopecurus pratensis L. meadow foxtail

Four accessions - PI-265564 from the Netherlands; PI-315369 from Czechoslovakia via USSR; PI-319815 from Norway and BN-18782 (a separate out of PI-315603 from Israel) - were grown. As is usual with this species here, most produced little to no seed.

BN-18782 consists of two plants, both very leafy, with good fall and spring growth. Some good seed has been collected.

PI-315369 was very weak, severely diseased, which resulted in the loss of many plants.

Alopecurus sericeus Gaertn. silky foxtail

A perennial grass occurring in alpine and sub-alpine pastures of the Caucasus and western and eastern Transcaucasus, the species was first described near the Black Sea area. It is of some value as a forage crop on high mountain pastures where it blooms in July and August.

Our plants of PI-325196 died during the summer of 1969, surviving as 4" x 2" tufts for only three months after transplanting. A cooler climate is needed.

Ammophila arenaria (L.) Link

European beachgrass

Homeland of this species is western Europe and the British Isles, where it is often dominant on coastal sand dunes.

PI-319816 from Norway has been surviving at Beltsville, but has not grown for two years. Tufts of leaves are 27" x 10"; spring recovery late but abundant. The species does better farther north and on the West Coast of the U.S.A.

Aristida lanata Poir.

wooly triple awn

Several references indicate this to be a synonym for A. lanosa. It is a common weed of coastal plains, dry sandy soils, from Delaware to Florida, Oklahoma to Texas.

Plants grown from seed of PI-321401 from Israel via Australia, died without setting seed. They went dormant during the summer of 1968, had good fall regrowth, then winterkilled. Plants were small, wiry tufts.

Aristida sp.

Another accession from Israel via Australia, PI-321402, died without maturing. Plants had 1/8-inch long cotton-like hairs all around the leaf collar. Leaves in bunches attained a size of ten inches, were very narrow and folded. No summer dormancy was noted, and all plants winterkilled.

Arundinella hirta (Thunb.) Koidz.

This is a Chinese-Japanese species, which occurs in moderately damp meadows with poor soil. It is claimed to be palatable to stock when plants are young and tender.

BN-18264, collected in Korea, was received as Miscanthus sp., and later reidentified. These warm perennial plants have abundant stems and leaves. This accession was a stooling bunchgrass, with early abundant spring growth, and matures early in October. Size attained was 58"-40"x26". Might have some forage value.

Brachiaria ruziziensis Germain & Evrard.

signalgrass

A warm perennial native of Kenya, generally very stoloniferous and leafy. Literature indicates a problem of obtaining viable seed.

The NPMC received stolons of three accessions collected by Dr. A. J. Oakes, New Crops Research Branch, ARS, in Costa Rica:

PI-338220 (Kenya K-55253) was very stoloniferous, with very dense foliage, but failed to set seed. Size just before frost was 24 inches tall, with spread of 96 inches.

PI-338221 (K-5832) was also very stoloniferous, not as dense; attained a height of 30 inches with spread of 96 inches.

PI-338225 (K-55253) formed a rooted mat of stolons and velvet leaves. A few seed heads were produced, 38 inches tall, but with no fill. Leaves were 35 inches tall and spread to 120 inches.

Stolons of all three accessions were shipped to the Georgia and Florida PMC's from Beltsville.

PI-344766, also received as stolons, never made any growth.

GRASSES

Brachypodium pinnatum (L.) Beauv. false brome

Germination of the seed of PI-325217 from the USSR was very poor, resulting in only five plants. These were very slow growing in the spring, with leaves to 2 inches. All plants were dead by mid-July.

Brachypodium sp.

This accession from Tunisia, BN-15860, did fairly well the first growing season (1968). However, the leaves were narrow with curled tips, not typical of Brachypodium. Unfortunately, no seed was collected or herbarium made, as all plants winterkilled.

Briza maxima L. big quakinggrass

This is a cool annual, with culms decumbent at base, and a drooping panicle. Introduced from Europe, it has escaped in California and Texas.

BN-19208, collected by Dr. E. E. Terrell, ARS, in California, produced seed heads 30 inches tall, and had lush, succulent, cauline leaves to 20 inches. Pollination was a problem in the greenhouse.

Bromus erectus Huds.

The species has been introduced from Europe and is presently found in the northeast and northwest United States, West Virginia, Kentucky and Alabama (Hitchcock).

PI-253193 out of Yugoslavia had very low vigor during the first growing season but perked up very well after the first winter. Plants had abundant stems and medium basal and cauline leaves. Short rhizomes were observed.

PI-311371 from Spain was a tufted cool perennial with seed heads to 29 inches, and leaves (basal and cauline) 12 inches tall by 10 inches spread. Leafspot was moderately abundant.

Both accessions had good fall and spring regrowth.

Bromus inermis Leyss. smooth brome

BN-13762, collected in Virginia by M. T. Augustine (SCS, retired), had good spreading habits with rhizomes to 2 feet in one year. Leafspot was severe to light on the plant population. Forage potential is good if disease problem is controlled.

PI-315385 from the USSR was very rhizomatous and had very abundant basal and cauline leaves. Plants had good vigor and good spring recovery. Leafspot was severe.

Bromus japonicus Thunb. Japanese chess

A re-seeding, annual weed in waste places from Vermont to Washington, south to North Carolina and California.

Two accessions were grown in 1969. BN-15871, collected in Tunisia, was received as Agropyron desertorum but subsequently reidentified. BN-18208 was received as an undetermined species from Pakistan.

Both introductions produced quick cover in the spring. Dense leafy tufts to 8 inches tall, and seed heads to 18 inches were produced by early August.

Being good re-seeding annuals, these may be of some use in seed mixtures for critical area stabilization.

GRASSESBromus riparius Rehm.

meadow brome

This slow sod-forming perennial is found in the mountains and fields of southeastern Europe, the Crimea and Asia Minor.

The twelve accessions grown at the NPMC included PI-251683, 314072, 315372, and 315386 through 315394, all from the USSR.

Best plants observed were from PI-315390. Stems were abundant, medium coarse and erect. Leaves were very abundant, soft, basal and cauline. Rhizomes were short. Mature size was 42"-22"x14". This accession has a good seed potential, is uniform in maturity, has very good summer growth and a light leaf disease problem.

The species may have use as a summer pasture plant in the mid-south.

Bromus sitchensis Trin.

Found in woods and on banks near the coast of Alaska to Oregon, this is a stout perennial species.

PI-202534 was a short-lived perennial bunchgrass at Beltsville. Mature size was 24"-17"x10". Severe leafspot was observed the second growing season, and plants died out by early August.

Chloris gayana Kunth

Rhodesgrass

Introduced from Africa.

PI-284793, a stoloniferous perennial from India via Australia, winter-killed at Beltsville as do all Rhodesgrass accessions. This particular one was early maturing - from late August until frost. Leaves were abundant and dense.

Dactylis glomerata L.

orchardgrass

Twenty-four new accessions were grown and compared. See chart, Page 34-35

PI-315414 was one of the best. It had abundant stems and leaves, excellent vigor, lots of forage material per plant and good fall recovery. Plant population was uniform in size and maturity, and of large plant type.

PI-315418, ^{PI-315419,} 315423 and 315424 were also outstanding, either in leafiness, uniformity, seed potential, or all three.

Dactylis glomerata subsq. woronowii (Ovczinn) Stebbins & Zohary

Grows on mountain steppes and steppe forests in northern and northeastern Iran and adjacent Turkmen SSR.

Culms very stiff, 40-90 cm., rising from large dense tufts, base of culms woody, thickened, 4-7 mm. wide, covered with dry, fibrous sheaths. Leaves stiff, blades grayish green to bluish green, 4-7 mm. wide, with scabrous surface and pronounced whitish scabrous keel and margins. Ligule hyaline, straw color, membranaceous and delicate. Panicle to 8-10 cm. long, very stiff, compact, appressed at maturity. Spikelets 35-70, 5-6 mm. long with 4-6 florets. Chromosome number $2n = 14$.

PI-314081 from the USSR is a cool hardy perennial bunch, resembling D. glomerata very closely in performance and appearance. Germination of original seed was very low so we had only three plants to evaluate.

Echinochloa colonum (L.) Link jungle rice

A widely spread annual species in the tropics of Asia and Africa. Usually found growing in damp, rich soils, it produces dense, lush growth. It is readily grazed by many kinds of stock and the grain is consumed by some poorer people. Young seedlings closely resemble young rice plants and the species is therefore considered an obnoxious pest.

PI-331385 was received from Ethiopia as Echinochloa sp. and later identified. Performance at Beltsville was poor, but plants did grow. Stems were sub-erect to prostrate, tacking at lower nodes. Leaves were few. Size: 18"-8"x36".

Echinochloa crusgalli (L.) Beauv. barnyardgrass

PI-325314, from the USSR, had few, fine, erect and suberect stems with few leaves. All plants bloomed in early June, set seed near the end of June and were dead by August.

Echinochloa pyramidalis (Lam.) Hitchc. & Chase

Distribution of this species is tropical Africa and America. In India, where it was introduced, the grass is an important forage. It has been stated that this grass and E. stagnina are chief constituents of the great floating meadows of the Niger and of Lake Chad in Africa ("Grasses of Burma, Ceylon, India and Pakistan" by N.L.Bor).

PI-331387 from Ethiopia is a warm tender perennial with short, fleshy rhizomes. Stems were abundant, coarse (3/8" to 1/2" dia.), erect; leaves moderately abundant, medium and cauline. Mature size was 90"-84"x40". Our season at Beltsville is a few weeks too short for seed to mature. Original seed was sent to the Georgia and Mississippi PMC's.

Elymus angustus Trin. (syn. *Aphanoneuron angustum* Nevski)

Perennial, with short creeping and ascending rhizomes. Culms 60-100 cm. tall, crowded in tufts, smooth, scabrous only below the spike. Leaves glaucous green and generally with rather inrolled margins. Lemmas 5-7 nerved, tapering into an awn-point 1.5-2.5 mm. long. Flowers in June & July.

The species grows on solonetz and steppe meadows, European USSR, western Siberia and Central Asia. Type specimen in Leningrad.

PI-314673 from the USSR was received as Elymus sp. and identified as E. angustus. It is a cool hardy perennial and is slowly rhizomatous. Plants had very few erect stems, few moderately harsh basal and cauline leaves. Mature size was 40"-22"x14". Vigor was low, potential at Beltsville nil. No seed was set, apparently because of climatic conditions.

Elymus arenarius L. lymegrass; European dune wildrye

As reported in our 1968 Annual Report, this is a beach and sand dune grass from northern Europe and Siberia.

PI-319819 from Norway is a rhizomatous perennial. Only six plants were grown and these had few stems but abundant leaves. The plants did not perform well here - probably because of the hot, humid climate.

GRASSESElymus excelsus Turcz.

Native to southeastern Siberia.

PI-315863 from Czechoslovakia has been growing here for three years and has not as yet produced one seed head. It is a cool hardy bunchgrass with a great abundance of leaves. Plants do well in the cool spring of the year, but as the warm summer approaches, the leaves die back and plants go semi-dormant.

Elymus giganteus Vahl

mammoth wildrye

E. giganteus is a robust cool hardy perennial with stout rhizomes. The spikes are large and dense and the species is sometimes grown as an ornamental.

PI-313965 from the USSR produced few coarse stems, with only moderately abundant harsh leaves. Rhizomes spread to 36 inches and plants had excellent fall regrowth in 1969. Mature size: 48"-30"x20".

Elymus junceus Fisch.

Russian wildrye

Three new accessions, PI-314082, 314665 and 314669, all from the USSR, were grown. All had few leaves and early abundant spring recovery. PI-314665 had very long and plentiful rhizomes while the other two accessions were bunchgrasses. General performance of all three was poor.

Elymus spp.

PI-314677 from the USSR grew two years at Beltsville and did not set seed. Each summer more of the plants died or were weakened so that the winter of 1968-69 finished off all remaining plants.

PI-314678 performed in the same fashion.

Elyonurus hirsutus (Vahl) Munro

A perennial with woody rootstock and silky-silvery racemes, the species occurs naturally on foothills and sandy plains of northwest India, Arabia, Egypt and northeast Africa.

Plants of PI-302447 from India winterkilled after attaining a leaf size of 28 by 16 inches the first summer.

Eragrostis bicolor Nees

This densely tufted perennial has short rhizomes and is distinguished by a dense tuft of glaucous expanded basal leaves and variegated lemmas, which are purplish below with a yellow tip. The species occurs only in the drier parts of Cape Province, Orange Free State and South West Africa.

While PI-299907 has been previously reported, a few added comments are in order. Plants of a 1968 planting gave a small seed crop during the first summer, survived the winter and yielded two crops the second year. Although the plants survived, only the southern portions lived. The species might be good for summer grazing farther south.

GRASSES

Eragrostis ferruginea (Thunb.) Beauv.

BN-18263, received from Korea as a Festuca species and reidentified, is a warm perennial bunchgrass. Mature size is 26"-22"x20". Producing few stems and abundant leaves, the seed heads are hidden within the leafy mass. Seed potential is good if mechanical harvesting is no problem.

This might be useful around impoundment structures and on berms where low maintenance is desired.

Festuca arenaria Lam.

sandy sheep fescue

A perennial with stems 30 to 60 cm. tall, growing on marine and lake sand dunes of the Arctic region of the USSR and Europe, including Finland and surrounding lake areas. General distribution includes Scandinavia and Atlantic Europe. First described in Sweden, it is of little or no economic value in the USSR other than for sand dune stabilization.

PI-314083 from the USSR is a cool hardy perennial sod-forming grass, resembling F. rubra. Leaves are moderately harsh and wiry. Our plants have grown for three years now and have produced no seed heads. Also, they suffer from heat damage every summer. We sent original seed to the Washington PMC in 1966, and plant divisions to the New Jersey PMC in 1969.

Festuca arundinacea Schreb.

tall fescue

Four accessions were grown. PI-264766 from the Netherlands via our Georgia PMC is an excellent selection here. Plants had excellent vigor all year, very little to no leafspot, abundant leaves and stems, and were large type plants. Mature size: 41"-20"x20".

PI-314685 from the USSR, and PI-316246 from Morocco via Australia were poor accessions, having too much disease. Leaves were medium to few.

PI-316245 from Morocco via Australia had few leaves and highly variable plant size and vigor. Plants are of a very narrow leaf type.

Festuca pratensis Huds.

meadow fescue

PI-320558 from Finland had few stems and abundant leaves. Mature size was 30"-16"x18". Plants are all of a small type, narrow-leaved, with very light leafspot.

Festuca rubra L.

red fescue

PI-311406 and 311407 from Spain and PI-315448 from the USSR all attained about the same size - 24"-10"x10". Very little difference was noted, except that PI-315448 matured two weeks earlier than the other two.

Festuca sclerophylla Boiss.

As reported in 1968, this species is native to northern Iran at 1600-2300 m. elevations.

PI-330707 from Iran had strong seedling vigor, but all seedlings died shortly after transplanting to the field.

GRASSES

Festuca sulcata Hack.

As reported in 1968, F. sulcata occurs in the mountainous or alpine regions of Europe. It is used for early spring and late fall planting.

PI-314087 and 314437 from the USSR were planted in the early spring of 1968. They are tufted perennial bunchgrasses with abundant wiry leaves. Both performed equally well. Mature size of each was 21"-9"x9". The major difference noted was that PI-314087 matured 22 days earlier than PI-314437.

Festuca varia Haenke

Seed of PI-325331 from the USSR had fair to poor germination and low seedling vigor. Plants were wiry tufts to 3 inches by early June. By the end of June, heat damage occurred and by October all plants were dead.

Koeleria caudata var. algeriensis Domin.

This species is native to Spain, Portugal and Algeria in dry areas of less than 20 inches of rainfall per year.

PI-345744 was assigned to a contaminant found in seed of PI-311379 (Dactylis glomerata) from Spain. This cool hardy perennial is a low-growing tufted bunchgrass with abundant stems and medium leaves. Mature size is 19"-7"x11". The foliage remains blue-green all summer long, and seed potential is good. All our original plants were moved in the fall of 1969 into a sod block to check turf potential and mowing response.

Koeleria vallesiana (Henck.) Bertol. Somersetgrass

This is a small perennial grass, normally occurring on sunny hills and stony ground in the western Alps, Spain, southern France and Algeria.

PI-311418 from Spain had abundant stems and medium but short, broadened leaves. Mature size was 7"-2"x7". Performance was apparently hindered by heat in July and August, as portions of the plants were dead by the end of August.

Lolium multiflorum Lam. Italian or annual ryegrass

Three new accessions were tried. PI-321395-396 from Czechoslovakia and PI-321679 from France were fall planted in the field.

Most seedlings of PI-321395 winterkilled, leaving three plants for seed production. Mature size was 20"-15"x10".

PI-321396 produced an excellent quality of leafy material. Plants were very dense with a mature size of 42"-32"x24". Seed potential is very good.

PI-321679, 'Itaque', had abundant stems with geniculate bases, abundant leaves, and was very uniform. Mature size was 30"-20"x14".

Oryzopsis coerulescens (Desf.) Hack.

A winter-growing perennial from the higher altitudes around the Mediterranean.

Seed of PI-284144 from Israel via Australia was very low in germination, and the few seedlings that did emerge were very weak and died.

BN-16312 from England gave the same performance.

GRASSESOryzopsis holciformis (Bieb.) Hack.

The species is out of the mountain and sub-alpine climates of Iran.

BN-16313 from England was container grown but performance was poor. Mature size was 34"-12"x12".

Plants of PI-314101 from the USSR were very weak and never set any seed.

Oryzopsis miliacea (L.) Benth. & Hook. smilograss

The following eleven accessions were tried at the National Plant Materials Center:

PI-284145	Morocco via Australia
284146	Israel via Australia
284147	Israel via Australia
284148	Israel via Australia
284149	Spain via Australia
287908	Spain
287909	Spain
292450	Israel
292451	Israel
BN-15612	Algeria
BN-15866	Tunisia

None of the above showed conservation value for this area. All produced little to no seed, had low vigor and winterkilled. Average size: 26"-12"x10".

Another accession, PI-287906 from Spain, was received as O. miliacea. Plants in the field had few stems, but moderately abundant leaves and a mature size of 40"-24"x14". While this appears to be an Oryzopsis, it is not O. miliacea. A herbarium was made, but reidentification has not as yet been determined.

Panicum amarulum Hitchc. & Chase coastal panicgrass

The species is used along the Atlantic and Gulf Coasts on sandy shores and dunes. It is a perennial with thick culms in large bunches, and produces vertical to ascending rhizomes.

BN-18706 was collected by Karl Graetz, PMS, in Manteo, North Carolina. Fresh seed had excellent germination after two weeks' stratification at 41°F. in sand and peat. Seedling vigor was very strong. The accession grew well, had abundant stems and moderately abundant to few leaves. Mature size was 75"-60"x50". Stems are apparently weak, as lodging was excessive. More than two pounds of seed was produced last year from two rod rows. Plants mature late and just barely beat the frost here.

Panicum antidotale Retz blue panicgrass

Panicum antidotale is a native of northwest India, Afghanistan, Madras, and Persia. It is found on sand dunes and dry river beds, and generally in desert places. Plants have an extensive rooting system with thick fleshy rhizomes and deep feeding roots.

According to N. L. Bor's "Grasses of Burma, Ceylon, India & Pakistan", the species is sometimes used as a native medicine, from which it doubtless receives its specific name.

F-709 and F-831, grown from seed received from the Florida PMC (their source the Georgia PMC) were both winter-hardy. F-709 had abundant stems

GRASSES

and medium leaves. Mature size: 90"-70"x50". The accession has been assigned PI-315719.

F-831 only had moderately abundant stems and medium leaves and mature size of 80"-55"x50. It was more upright and narrow and had some winter damage. F-831 was assigned PI-315720.

Panicum virgatum L.

switchgrass

A native species found on prairies and open ground, open woods and brackish marshes from Maine to North Dakota and south to Florida and Arizona. It is a warm hardy perennial with scaly rhizomes.

One new accession was grown here, PM-SD-149 (BN-17965) from South Dakota. Plants had abundant stems with medium to few leaves. Mature size was 50"-42"x20". It is a bluish-green accession and highly variable in growth habit.

Phalaris arundinacea L.

reed canarygrass

PI-314102, 315485 and 315487 from the USSR, and PI-319825 from Norway were grown.

PI-315487 appeared to be a good accession. Vigor and spread were favorable, but compared to 'Ioreed' it is not as good. PI-314102 had leafspot problems.

PI-315485 appeared to be a very slow accession. After two years, no heads had been set, and leaves were 16"x16". Plants had no vigor and suffered severe leaf disease, so were discarded.

PI-319825 seems to be a good dwarf, with a mature size of 36"-15"x30". Some seed was collected. Plants remained fairly green even during the heat of August in 1968. Germination of original seed was very low, so all evaluations are based on two plants.

Phalaris truncata Guss.

This winter-growing, perennial bunchgrass occurs frequently on roadsides and drains in Tunisia. It is claimed to be more salt tolerant than P. aquatica.

PI-284192, 316335 and 316337, all from Algeria via Australia, were compared.

PI-316337 out-performed the other accessions. It had moderately abundant, erect stems with few, soft leaves. Mature size was 39"-17"x15".

The species shows no conservation value in the Beltsville area. All accessions exhibited summer dormancy and later winterkilled.

Poa ampla Merr.

big bluegrass

This perennial bunchgrass growing 80 to 120 cm. tall is found on meadows and moist open ground or dry rocky slopes from North Dakota south to New Mexico and California (Hitchcock).

Plants of PI-284249 from Sweden via Australia had medium erect stems with few basal and cauline leaves. Mature size was 30"-14"x9". Very little potential for this species in this area.

GRASSESPoa longifolia Trin.

The species is endemic to the western, eastern and southern Caucasus in alpine and subalpine meadows.

Another Russian accession, PI-325463, like PI-314103 which was reported in 1968, failed to survive the first summer. Plants were healthy in the spring, but as warm weather approached, became weak and died.

Poa pratensis L.

Kentucky bluegrass

BN-16146 from India is a wide-leaf type. Either disease or winter injury caused several dead areas in the turf this past spring (1969). Mature size of plants is 22"-9"x18".

Poa spp.

PI-314736 from the USSR was started twice. Both times healthy transplants were set out in the field and then began to die as soon as hot weather approached. Plants were small bluish tufts.

PI-330718 from Iran went to the field, transplanted from the greenhouse. Seedlings became very diseased and died.

Polytrias amaura (Buese) Kuntze PI-344518 Java grass

This species, which is commonly used as a lawn grass in the tropics, is distributed in Burma, Malaya, Southeast Asia and China.

We received vegetative material from Australia, but the stolons were moldy on arrival and failed to make any growth.

Secale montanum Guss.

mountain rye

PI-283976 survived while six other accessions died during 1968. Spring recovery was early and abundant; plants bloomed in June and matured by mid-July, then went semi-dormant in August. Stems were abundant but leaves very few.

Sesleria heufleriana Schur.

A native of east central Europe and the Caucasus, the species is found on limestone soils on sunny slopes.

PI-314105 from the USSR is a cool hardy perennial. Our plants are distinct bunches, and since a description of the species says that it should have long creeping rhizomes, a herbarium will be taken in the spring of 1970 for positive identification.

Our plants were in full bloom by mid-April, the first of the grasses to bloom. Plants had few stems but abundant basal and stiffly erect leaves. Seed potential here is very low; we made collections in May and July, but most of the seed heads had poor fill.

Spinifex hirsutus Labill.

spring rolling grass

Native and widespread in Australia, this plant is recommended as a sandbinder in fixing drift sands. It is claimed to make rapid growth.

Seed of PI-316344 from New South Wales had very low germination, resulting in only three plants. These developed stolons 3/8" in diameter and 70" long, all in three months. Leaves were velvety and roots developed at the nodes. No seed heads set and all plants winterkilled.

GRASSESSporobolus indicus (L.) R. Br.

According to Hitchcock, this species grows in Florida and tropical America. According to N. L. Bor in "Grasses of Burma, Ceylon, India and Pakistan", the species is still confusing and should be noted as S. indicus auctt. non (Linn.) R. Br.

PI-310427 from the USSR performed well for a so-called tropical species. It acted like a hardy perennial bunchgrass, surviving the winter of 1968-69, blooming in June and maturing in July and August. Frost activity kills the tops and spring recovery is late. Seed production is typical of a potential weed - two crops per year of very small seed.

Sporobolus ioclados var. usitatus (L.) Stent.

This species, which grows in damp places and is widespread in southern Africa, is stoloniferous, thus differing from S. ioclados Nees.

PI-300124 from South Africa was slowly stoloniferous. Plants had abundant stems but few leaves and a limited spread. Mature size was 30"-8"x12". Seed matured in late September. All plants winterkilled.

Sporobolus tenacissimus Beauv.

This species is found growing in Portugal, Morocco and Algiers.

PI-310428 from the USSR is a warm hardy perennial bunchgrass. Plants had moderately abundant coarse erect stems with few soft basal and cauline leaves. Mature size was 40"-19"x13". Spring recovery was late and medium with severe winter damage. Seed was plentiful. Conservation value is considered low, since plants were too open.

NOTES & COMMENT

LEGUMES & OTHERAcacia cyclops A. Cunn. ex DonPort Jackson willow
cyclops acacia

This is a shrub to ten feet tall, with whorled narrow leaves to 3 inches long, 1/3 inch wide; seed pods in clusters in leaf axils, curled when immature, 4-7 seeded, septate, flat to 3 inches long, 1/2 inch wide; seeds small, flat, black, completely surrounded by orange aril. The species is used for sand dune stabilization, being wind and salt tolerant. (A.J.Oakes, "Review of Plant Exploration in South Africa, 1964".)

Plants were grown in the following manner from PI-330654 out of Israel, to be used in a field trial in Texas. Seed was planted in a 6-inch pot of soil which was kept moist and warm for one month. When no emergence was observed, the seed was dug up, hand-nicked, and replanted. At the same time a second planting was made of scarified seed from the same lot. Germination of the hand-nicked seed occurred within a month, but the scarified seed in the second planting rotted. This seems to indicate that 30 days of warm, moist stratification is necessary, plus scarification.

Seedlings had narrow leaves to three inches, and grew slowly.

Alysicarpus longifolius (Rottl.) Wight & Arn.

PI-283177 from South Rhodesia via Australia is an annual with a solitary base. Greenhouse culture was attempted. Plants had few erect and sub-erect stems, with few cauline leaves. Mature size was 45"x45", and plants bloomed for several months without setting any seed. Probably needs insect pollination. Our plants eventually died.

Alyssum argenteum Vitman

yellowtuft

A dense, yellow-flowered plant from Central Europe. Seed of BN-18092 was collected in Latvia and came to us through the National Arboretum. Germination was poor, and the seedlings did not survive.

Alyssum borzianum Nydr.

This species is an erect plant with a woody base and dense basal rosettes of white or ashy white leaves. Flowers in June are yellow. It is generally found on limestone soils with pH 7.0 or greater, and its range is from the Black Sea coast of Bulgaria, Romania, and rarely western Turkey.

Two plants of BN-18095 grew fairly well and bloomed in June. May have possible use as a ground cover or beautification plant.

Alyssum murale Waldst & Kit

madwort

An erect to sub-erect plant with leaves greenish above and silvery or white below. Flowers in June-July with profuse yellow blooms. The species is found in southeastern and central Europe.

BN-18104 from Austria, and BN-18106 and 18111 from Hungary, all received from the National Arboretum, were compared. Performance of BN-18104 and 18111 was very good. Both had abundant stems and leaves and formed an excellent groundcover, 18"x 30". Should be included in further trials if pH is 7.0 or better. Possible use on roadsides, as well as ornamentals.

LEGUMES & OTHER

Alyssum murale ssp. transsylvanica Hayek madwort

BN-18101 from Hungary via the National Arboretum was slightly smaller and less aggressive than the A. murale accessions.

Plants are about 12 inches tall with bright yellow flowers. While it resembles A. murale, the subspecies has a more delicate appearance and smaller, glabrous fruits.

Amelanchier spicata (Lam.) K.Koch

A bushy shrub with numerous stems to 4 m., introduced from Europe before 1800.

PI-310377 from the USSR is a rhizomatous (or rootsuckering) shrub. Slow-growing, it is only 18 inches tall with a spread of 22 inches after three years. It is fine-textured in appearance.

Amorpha sp.

PI-314213, a woody shrub from Russia, has been observed at Beltsville for three years. It is multi-stemmed at the ground, and 30 to 50 inches tall after three years.

Ampelopsis brevipedunculata v. citrulloides (Lebas) Rehd.

A perennial, climbing, woody vine with cymes that change from lilac to bright blue in color when blooming. It is native to northeast Asia, was first cultivated around 1870, and hardy to Zone IV.

BN-18527, which was collected at the Chapel Hill, N. C. Nursery from a 1939 planting, has vines to 20 inches with reddish ends (age 2-0). Berries are blue; leaves are deeply cut and resemble Acer. It looks like a very good accession for observation and erosion control. K. E. Graetz says it is vigorous and will grow up trees and shrubs.

Anagyris foetida L.

A trifoliate shrubby legume with sessile yellow flowers, native in the Mediterranean region to the maritime Alps. It is used as a browse plant under natural conditions and has been reported to be both good and bitter.

PI-302472 from Greece does well under greenhouse culture at the NPMC. It is slightly over 3 feet tall and is branching from the stem and base. Leaves are soft and moderately abundant. It has not bloomed as yet.

Limited cutting wood is available from 3 plants.

Argyrolobium linnaeanum Walp.

A small shrub or herb 1-2 decimeters high with ovate, lanceolate leaflets that have a silvery pubescence on the underside. The species is native to calcareous and arid soils of the Mediterranean region.

PI-302847 was a very slow-growing plant, prostrate in habit, and exhibiting moderate vigor and growth during the summer. Size in August was 2 inches high, with a 13 inch spread. It is, however, not winter hardy at this location.

Astragalus asper Jacq.

A perennial legume 40 to 60 cm. tall and native to the dry steppes of central Europe.

PI-314059 from the USSR was a poor accession at Beltsville, with few stems and leaves. Plants were erect to sub-erect in habit and provided very little conservation value or ground cover.

Astragalus brachycarpus Bieb.

A perennial woody legume that blooms in March and April and fruits in May. It grows on loamy, stony soils in the foothills of the Russian Caucasus Mountains at elevations from 200 to 850 meters and extends west and south of the Caucasus. General distribution is Armenia, Kurdistan, the Balkans and Asia Minor.

PI-314415 from the USSR suffered extensive summer heat damage at this location and was too weak to over-winter.

Astragalus calycinus Bieb.

A perennial legume 8 to 18 cm. tall, native to limestone outcroppings in the Russian Caucasus mountains.

PI-314357 has possible ornamental value as a rock garden plant. It is sub-erect in habit with a moderate amount of fine stems and soft leaves. It blooms in mid-May at Beltsville, and seed is mature by early June. Seed is very subject to shattering. This accession resembled Hedysarum.

Astragalus galegiformis L.

A very leafy, slightly hairy, upright perennial plant of from 1 to 3 feet in height. Leaves are long and pinnate, with 5 to 10 pairs of leaflets. Flowers are borne on axillary petioles in long racemes. The species is native to southeastern Europe, Asia Minor and the Caucasus.

PI-316162 from the USSR via Australia is a solitary, sub-erect perennial, moderately coarse-textured, with many well-distributed cauline leaves. It blooms in early June, but blasts before setting seed. Mature size: 8"x26". Spring recovery is early.

Astragalus glycyphyllos L.

A perennial to 3½ feet with glabrous stems, prostrate to ascending. Flowers yellow; pods cylindrical, acute and glabrous. Origin is central Europe and western Asia.

PI-319817 and 319818 from Norway are both being observed at the NPMC. PI-319817 is sub-erect, more leafy and better performing at Beltsville. It forms a vigorous dense mat and is not bothered by the summer heat and humidity. PI-319818 is prostrate, and grows poorly at this location, lacking the vigor and cover of PI-319817.

Astragalus interpositus A. Boriss.

This tap-rooted, long-stemmed perennial, 20 to 30 cm. long, is a native of the mountain steppes of the Caucasus, growing in crevices of rock and limestone at elevations of 1100 to 2000 meters.

PI-314065 is sub-erect to prostrate, with moderately few stems and an open growth habit. It has few leaves and fair vigor. Plants are very glaucous and flower in late May and early June, setting little seed. No conservation value in this area.

Calophaca wolgarica (L.f.) Fisch. pea

A perennial, leguminous shrub to 1 meter, often procumbent, with bright yellow flowers. Is native to the area from southern Russia to Turkestan, and prefers full sun and a well-drained soil.

PI-314073 from the USSR is a slow and open growing shrub, sub-erect to prostrate. It is subject to heat damage at Beltsville and shows no conservation value here.

Caragana brevispina Royle ex Benth.

A deciduous, leguminous shrub to 2.5 meters with yellowish flowers. It is native to the northwestern Himalayas and prefers sunny positions in sandy soils.

PI-310389 from the USSR may be a very good accession for windbreaks. It is fairly dense and leafy with many upright branches from the base, and warrants further observation. Size after three years growth from seed is 48 inches high with a 12 inch spread.

Caragana microphylla v. mandschurica Kom.

PI-107664 originally introduced from Manchuria in 1934 is much like C. brevispina, but with greater spread due to more side branching. Size after three years growth from seed is 35 inches in height with a 24 inch spread. Reportedly a 4-foot shrub eaten by cattle before the spines harden.

Caragana sp.

PI-310390 from Taschkent, USSR, was received as C. arborescens. It is not a branching accession, and has an erect growth habit. Deer browse the top and re-growth is slow. Shows little promise as a windbreak.

Carex bordzilovskii Krecz.

PI-314365 is an erect, rhizomatous perennial from the USSR, with few fine stems and moderately abundant basal leaves. It has produced very few seed heads to date. Size at time of seed collection was 14"-10"x14".

Carex verna Chaix. ex Vill.

According to Britton and Brown, this is a synonym for Carex carophyllea (vernal sedge). It is native to Europe and Asia.

PI-314366 is another erect, perennial Russian accession. It has few stems and few basal leaves. It is rhizomatous, spreads well and may be of limited value if fertilized well, but is very open in growth. It is a poor seed producer.

Carex sp.

Only one plant was grown from PI-314147 from the USSR. Of the three treatments tried to break seed dormancy, only one worked - scarification of the seed in concentrated sulfuric acid for 1/2 hour. Our surviving plant is rhizomatous and very vigorous, with rhizomes to 38 inches. Leaves are 6 inches high, and new growth from the rhizomes produces an excellent spread.

LEGUMES & OTHER

Cedrela sp.

PI-308651, 'Cedro rosa' from Brazil, was planted in a coldframe, but had no germination after 18 months.

Clitoria ternatea L.

Kordofan pea

This species is a perennial, deep-rooted legume. Plants will not tolerate high humidity, yet respond well to irrigation in dry areas. It often volunteers on black cotton soil. A native of tropical Asia, its principal use is as a cover crop or green manure. Leaves and pods are occasionally grazed by livestock.

PI-283237 from Cuba via Australia was a suberect to prostrate vine with few leaves. Mature size tied up on stakes was 40"x15". Our plants were white-flowered. Even though seed matured over a four month period, little shattering occurred.

Cytisus nigricans L.

The species was first introduced from Europe about 1730. It is an upright shrub to 2 meters. Flowers are yellow, about 1 cm. long, slender stalked, in terminal racemes 8-30 cm. long. Pubescent pods are about 3 cm. long.

Plants from PI-308010, source Czechoslovakia, are doing well. They are about 10 inches tall, multibranched from the lower portions of the central stem. Leaves are trifoliate, 1/4 inch to 3/8 inch long, and seed pods remain on the plants into December and January.

Desmodium axillare (Sw.) DC.

Desmodium axillare is a herbaceous perennial native to Guatemala, where it grows in wet or moist forests and thickets at elevations less than 1000 meters.

PI-312172 from Mexico turns woody at the base at maturity. This plant was 18"x72" in size and had moderately abundant leaves. Leaves purple water-marked, slightly rugose; flowers blue-pink; pods mostly 6-8 loments. Stems were somewhat triangular and concave. Looks like an excellent pasture-type tickclover. Day length appeared to be very critical for seed set in the greenhouse.

Desmodium cinereum (HBK.) DC.

A perennial shrub, 1-2 meters. Grows along the west coast of Mexico in dry deciduous forest areas.

Both PI-311104 from Guatemala and PI-312170 from Mexico are good pasture type accessions. Both are sub-erect to prostrate and make excellent and rapid re-growth when cut. Mature size of PI-311104 was 16"x40", and 24"x72" for 312170. Neither produced much seed in the greenhouse.

Desmodium intortum (Mill.) Urb.

intortum or beggarweed; tickclover

D. intortum is a native of Central and South America. It is adapted in Hawaii in high rainfall areas at elevations up to 3,000 feet. Establishment in Hawaii is difficult unless good ground preparation is made. Seeding rates of up to 5 pounds per acre are used with the cowpea inoculant. The species is often used with pangolagrass (Digitaria decumbens) as a pasture mix.

LEGUMES & OTHER

PI-311122 from Honduras and PI-312129 from Guatemala had long stems about 100 inches, which were triangular, concave and very reddish. PI-312129 had superior regrowth after cutting.

Desmodium tortuosum (Sw.) DC.

Florida beggarweed or tickclover

This species is native to tropical and sub-tropical America. Plants have varied uses - from green manure or cover crop to forage crop.

BN-18715, a separate out of PI-188559 from Guatemala, had few stems and leaves with very little potential demonstrated in the greenhouse.

BN-18716, a separate out of BN-5835, had a mature size of 84"x84". The main stem became woody, but under proper management it might be a good hay type.

Desmodium spp.

Three accessions have not been identified as yet, although herbariums have been submitted.

PI-312169 from Mexico was a prostrate type, 20"x128". Plants showed good regrowth after being cut back to 2 or three inches above the ground line. Leaves and stems were abundant.

PI-317895 from Tanzania via Brazil had few upright stems with few leaves, and a mature size of 84"x40". Might produce more stems if cut for hay, as regrowth after cutting was from lower buds.

PI-319471 from Tanzania was also upright with a mature size of 80"x36". Performance was similar to PI-317895.

Glycyrrhiza sp.

PI-314256 from the USSR performed poorly at Beltsville. Although it is a cool hardy perennial legume, it has not set seed in the three years it has been under observation.

Our plants have few, fine stems, a sub-erect to prostrate growth habit and few soft, well-distributed leaves on the stems. At this location it goes dormant in October.

Hedysarum alpinum L.

A perennial 40 to 120 cm. in height, its range extends across Northern Russia from Lappland and the Kola Peninsula across the Polar Ural Mountains into Arctic Siberia. It is found in forest meadows, birch and pine forests, and hillsides of higher mountains.

In its native habitat, the plant develops a large green mass, with a woody bottom too hard to be of forage value, but with tender upper stems that are browsed by animals. The species blooms in June and July. It is reported that the Russians are investigating this plant for silage value.

PI-308014 out of Czechoslovakia grew to 3"x12", was very chlorotic, and had few stems and leaves. Also, it could not tolerate the heat at Beltsville, and was dead by July.

LEGUMES & OTHERHedysarum caucasicum Bieb.

This is a leafy, perennial legume to 50 cm. high, that produces a good yield of fairly rich leafy hay. It is abundant in sub-alpine and alpine meadows (2,000-3,000 m.) in the north Caucasus, Askazia, and Georgia, USSR.

Seed of PI-325346 was apparently immature, and was of very poor quality. Only a few weak seedlings emerged and seedling vigor was poor. In January, four months after planting, all were dead.

Helianthemum variable Mill.

rock rose

PI-292853 from Germany is an evergreen perennial groundcover, sub-erect and solitary in habit. Stems are abundant and fine with many soft leaves. Maximum height is 8 to 10 inches. Plants form a dense cover and are frequently cropped by deer in early spring.

Hippocrepis unisiliquosa L.

An annual legume with a fine, shallow tap root.

PI-321406 was container grown in the greenhouse and bloomed in early May at this location. It had few fine stems with few, soft, cauline leaves and was sub-erect in habit. Original seed came from Israel.

Hosta ventricosa (Salisb.) Stearn

plantain lily

PI-319821 is a perennial groundcover, solitary in nature, whose leaves form a rosette pattern. Most Hostas prefer shade, but growing under full sun and in a sandy soil, this particular accession from Norway is performing very poorly.

Lathyrus magellanicus Lam. - BN-18899

This accession was grown at the request of Dr. C. R. Gunn, NCRB, ARS, for observational purposes. The species is from Argentina, a perennial climbing to five feet.

BN-18899 was grown under greenhouse culture during the winter, but developed root-rot and died before being moved outdoors. Much of the seed of this accession was mottled. Germination and seedling vigor was poor.

Lathyrus roseus Stev.

A glabrous, solitary, erect perennial legume 80 to 150 cm., with woody stems. It blooms in June and July, and is found in hilly forests to 1800 meters in the Caucasus Mountains and foothills. General distribution is Asia Minor.

PI-314443 from the USSR had very poor germination. This species was so inhibited by the heat that by August it was only five inches tall and very weak. Because of this weakening it did not survive the winter. No seed was produced.

LEGUMES & OTHERLespedeza cuneata (Dumont) G. Don

sericea lespedeza

In 1962 various selections of Lespedeza cuneata were assembled at the NPMC by Drs. Cope and Henson. These were planted in a polycross production block, and seed collected in 1963 was assigned BN-14651. The 1963 seed of BN-14651 was planted in 1965, rogued the following year to remove weak and undesirable types, leaving the decumbent plants. It was rogued again in 1967, leaving the best decumbent plants. Spaced plants grown from seed collected in 1967 were set out in 1968. Following is a description of the plants set out in 1968:

BN-14651-67 is a hardy perennial, tap-rooted and solitary in habit. It has abundant stems, medium to coarse in texture with many side branches, and is decumbent to procumbent. Leaves are very abundant, soft, cauline and well-distributed. Plants are 20 inches high and 80 inches wide, and form a solid dense mat. They show excellent vigor during the growing season, and spring recovery is late but abundant, with no winter damage. In this location it is an excellent accession, and appears to have more conservation value than the variety 'Interstate'.

Lespedeza cuneata (Dumont) G. Don

sericea lespedeza

PI-318638 from Korea is an erect-growing, hardy perennial, solitary in habit. Stems are few and medium in texture, with a medium amount of soft, well-distributed cauline leaves. Mature size is 48 inches high and 50 inches wide. It is a heavy seed producer at Beltsville.

Lespedeza cuneata (Dumont) G. Don

sericea lespedeza

'Interstate', a variety developed at Auburn University, is a hardy perennial, erect to suberect in habit, possessing an abundance of fine multibranched stems. Leaves are soft, fine, cauline and well distributed over the whole plant. Size is 26"x32". Should make a good hay type sericea.

Seed maturity date is too late at Beltsville for 'Interstate', and only a partial crop can be collected.

Lespedeza cuneata (Dumont) G. Don

sericea lespedeza

NY-4570 (BN-18243), a selection from the Big Flats, N. Y. plant materials center, was grown at Beltsville for comparison purposes. It is a very good accession with abundant coarse, multi-branched stems. Solitary and erect in habit, it has a moderate amount of soft, well-distributed cauline leaves. Mature size is 50"x50", about twice as tall as 'Interstate'.

Lespedeza cuneata (Dumont) G. Don

sericea lespedeza

BN-18581 is a selection from three early maturing plants of the Cope-Henson polycross, BN-14651. The plants from which BN-18581 was collected died from disease, and it was later assumed that the disease had caused them to mature early. The selection turned out to be highly variable, and matures as late as BN-14651. It has fewer stems and smaller and finer leaves.

Lespedeza X divaricata (Nakai) T. B. Lee

A hybrid cross between L. juncea var. inschanica and L. daurica, first found near Inchon, Korea. It is similar to L. juncea var. inschanica, but has broader leaves, longer branches and greener leaves. It is sub-erect

LEGUMES & OTHER

to prostrate in growth and is shorter than L. juncea var. inschanica. Its branches are covered with a silky, pubescence, denser on top than on the bottom. It is also lightly pubescent on the underside of the leaves. Leaves are alternate, in trifoliate patterns; blooms in September; flowers white with purple corollas; fruit is set in October. The species grows in association with annual grasses.

PI-318639, a perennial accession from Korea, has few stems and leaves. It is solitary in habit and sub-erect to prostrate in growth. Mature size is 34"x48".

Lespedeza inschanica (Maxim.) Schindl.

PI-318640, from Korea, is perennial, solitary in habit. It has fine, moderately abundant stems and is erect to sub-erect in growth. The soft, cauline leaves are abundant and well distributed. Mature size: 42"x36". The species resembles L. cuneata, and is native to Manchuria.

Lespedeza tomentosa (Thunb.) Sieb. ex Maxim.

This perennial species, closely related to lucerne, occurs in Armenia and the Caucasus Mountains up to 7,500 feet. Flowers, stems, and calyx are densely covered with glandular hairs. It may have a place as an ornamental or for wildlife food.

PI-318641, from Korea, is perennial, solitary and erect; stems are few, medium in texture, and have a moderate amount of well-distributed cauline leaves. Mature size is 45" high and 38" wide.

Ligustrum nepalense Wall.

Plants of PI-285372 from Nepal, received from the Glenn Dale Plant Introduction Station, did not perform successfully at the NPMC.

Lonicera maackii erubescens Rehd.

Seed of this woody shrub was received from the New York Botanical Gardens, and grown at the NPMC for observational purposes. Our plants were highly variable, with leaves and berries dropping at different times. Berry size was also variable. One plant held its fruit well into January, as long as our local L. maackii (BN-8419).

Lotus caucasicus Kurpian

This species is found in alpine and sub-alpine meadows in European Russia and the Caucasus Mountains.

PI-314090 is a perennial, solitary accession from the USSR, sub-erect to prostrate in habit with abundant coarse stems and many soft, well-distributed cauline leaves. Spring recovery was early and abundant. Mature size 12"x40".

PI-314930, another introduction from the USSR, is a perennial, solitary bunch, sub-erect in habit. Stems are coarse and abundant, with a moderate amount of soft, well-distributed cauline leaves. Plants form a very dense ground cover and have excellent vigor with early spring recovery. No winter injury has been observed at this location. Mature size was 13"x36".

LEGUME & OTHERLotus corniculatus L.

birdsfoot trefoil

PI-319822, received from Norway, has many fine stems with many fine soft, cauline, well-distributed leaves. It is prostrate and rhizomatous, but an open grower. Produced very little seed at Beltsville.

PI-319823, also from Norway, is a dense mat former with good spring recovery. It has many stems and leaves and is rhizomatous and prostrate (2 inches tall) in habit. Grows well in Beltsville's sandy soil, but has not yet set seed.

Lotus strictus Fisch. & Mey.

A glabrous to sub-glabrous annual legume, to 100 cm. tall, with pale yellow flowers, this species is found from eastern Bulgaria to northeastern Greece.

PI-300015, collected in South Africa, is a rhizomatous and stoloniferous accession that forms a dark, solid, vegetative mat. Stems were abundant and fine, leaves abundant, soft and well distributed. Spring recovery was good and moderately early.

Medicago tribuloides Desr.

A winter-growing annual native to the Crimea, Caucasus and Black Sea area, reportedly of no importance as fodder. The species has also been reported in Portugal where it prefers neutral to alkaline situations on soils derived from limestone. Stems are thin and downy and the corolla is orange-colored.

PI-283661 from Cyprus via Australia, grown under greenhouse culture, was a solitary annual. Plants were sub-erect to prostrate and had a moderate amount of stems and leaves. It bloomed in the greenhouse in January and February and seed was collected in April and May. Size: 6"x24".

Melilotus leucanthus Koch

PI-290390 from Hungary behaved as a biennial at Beltsville. It was erect and solitary in habit, with few leaves and a moderate amount of coarse stems. It was frequently grazed by deer at this location.

Melilotus officinalis (L.) Desr.

yellow sweetclover

PI-314096 from the USSR was direct fall-planted at Beltsville, with favorable results. Seems to be a fairly good accession, erect to sub-erect in habit with moderately abundant coarse stems and soft, well-distributed cauline leaves. Mature size: 40"x36".

Polemonium reptans L.

PI-341782, received from Canada as vegetative material, was tried with no success at Beltsville.

Pueraria sp.

BN-18270, collected in Korea, was grown in the greenhouse for approximately one year and then sent to the Mississippi PMC. Planted in March, the vines were up to 14 feet in length by April. It went dormant in December and lost most of its leaves.

LEGUMES & OTHERRhamnus utilis Dcne.

Woody shrub to 3 m. in height, native to China.

Seed of PI-310419 from the USSR was planted in April 1966, and plants are presently 18 to 60 inches tall and 40 inches wide. Fruit is navy blue in color, has a pungent odor when crushed, and remains on the plant into December. During the winter the shrub looks like a plum tree. It has few branches, silvery-gray in color, and does not provide much of a canopy.

Robinia sp.

BN-18272 was received as seed from Korea, and grown for one year. It was found to be very spiny, resembling Robinia pseudoacacia. It was fast growing and non-suckering. Plants were destroyed in 1969.

Rosa canina L.

dog rose

Shrub to 3 m. with arching branches and stout hooked prickles. Originally from Europe, it is now occasionally found naturalized in the North American hardiness zone III. It is often used as stock for grafting.

Seed of PI-312358 from the USSR, after being scarified for two hours in concentrated sulfuric acid, still required two overwintering periods in a coldframe to break dormancy. This accession is subject to mildew in Beltsville's hot, humid summers.

Rosa helenae Rehd. & Wils.

Helen's rose

A sarmentose shrub to 5 m. with stout hooked prickles, native to central China. Hardiness is limited to Zone IV.

PI-315870 from Czechoslovakia required one overwintering period to break dormancy after seed was scarified for 20 minutes in concentrated sulfuric acid. The accession is moderately open, 30 inches tall and 60 inches wide. Stems are very brilliant reddish purple in color. Plants were very subject to mildew here.

Rosa micrantha J.E.Smith

A many-branched shrub to 2 m. with arching branches and uniform, curved prickles. It is native to Europe and the Mediterranean region. Flowers are pink to white. Hardy in Zone V.

Seed of PI-315871 from Czechoslovakia was fall planted in a coldframe after being scarified for twenty minutes in concentrated sulfuric acid. Seedlings emerged the following spring. Flowers are pink and white, stems are very prickly. Prickles turn white on the old growth. New vegetative growth is dense and arched.

Rosa roxburghii Tratt.

A spreading shrub to 2.5 m. with gray, peeling bark on older plants. It is native to Japan and China. Hardy to Zone VI (probably).

PI-315872 from Czechoslovakia is a very upright accession with little side growth. Leaves resemble Robinia pseudoacacia, and young growth on stems is reddish. With the old wood a tannish color and new wood purple, the accession is quite attractive. Plants are multi-stemmed, with canes up to 3/4" in diameter.

LEGUMES & OTHERRosa rubrifolia Vill.

An upright shrub to 2 m. with few small prickles, native to the mountains of central and southern Europe. The species is hardy to northern Canada. Flowers are reportedly red.

PI-315873, received as R. rubrifolia from Czechoslovakia, was grown from seed. Since our plants have dense spines and pink and white flowers, identity is questioned. There is some variation within the row of plants, and one plant is rhizomatous. The accession may have some ornamental value because of the reddish blue foliage and yellow hips. At maturity, the hips range in color from orange to black.

Syringa amurensis Rupr.

Amur lilac

This native of Manchuria and northern China was introduced about 1855, and is a shrub or small tree to 6 m. with upright or spreading branches. It is hardy to Zone IV.

Seed of PI-319826 required 60 to 90 days to break dormancy. Only one of the 10 plants transplanted to the field survived. Again, our hot, humid summers can be blamed.

Syringa reflexa C.Schneid.

nodding lilac

A shrub to 4 m. with rather stout branches and smooth bark, this is a distinct and handsome species with pinkish white flowers in long pendulous panicles. It was introduced in 1901 and is native to central China; hardy to Zone V.

Seed of PI-319827 received from Norway required 60 days stratification at 41°F. to break dormancy. Seedlings that were transplanted to the field did not withstand the summer months very well - 2 plants out of 5 survived the first summer, and only 1 the second summer. The remaining plant, however, is erect and is showing excellent vigor.

Trifolium ambiguum Bieb.

kura clover

A rhizomatous perennial of creeping habit, capable of withstanding inundation and trampling and grazing, it is native to the Caucasus and Armenia. The species is cross-pollinated.

PI-308076 from Czechoslovakia is a solitary, rhizomatous perennial with few soft, basal leaves. It does poorly at Beltsville in the summer, and tends to burn during its first year in the field. It has not set seed yet at this location.

Trifolium elongatum Willd. ex Char.

This species is a rhizomatous, cool hardy perennial that is characterized by abundant vegetative production.

PI-253200 from Czechoslovakia proved to be a fairly good accession at Beltsville. It is sub-erect in habit, with many fine stems and abundant, soft cauline and well-distributed leaves. Spring recovery is early and abundant, but the species is not too drought-tolerant. Seed ripens in early July at this location.

LEGUMES & OTHERTrifolium fragiferum L.

strawberry clover

This stoloniferous perennial prefers damp areas and tolerates wet conditions and high salt concentrations in the soil. It is adaptable to temperate and sub-temperate zones under extended winter or summer rainfall conditions, and tropical and sub-tropical regions under restricted rainfall conditions. It also responds to irrigation. Alkaline soils are preferred, and the species is utilized for pasture. The species is native to Europe, Asia Minor and North Africa.

Three accessions were grown at Beltsville - PI-316352 and 316353 from the USSR via Australia, and PI-319828 from Norway. The two Russian accessions were much better than the Norway introduction, forming dense mats that were restricted by cultivation. All were prostrate, but PI-316352 was the most vigorous and the heaviest seed producer. The two accessions from the USSR were received as T. neglectum, and later reidentified.

Trifolium megalanthum Steud.

A perennial clover fairly common over a wide range in Chile, usually in the coastal area. It favors sandy soils, but has been found under a variety of conditions. The species is rather prostrate, with strong tap roots, and roots at the nodes. New growth occurs from the crowns below the soil surface after summer dormancy.

PI-297987, 297989, 297990, 297991 and 297992 from Chile via Australia, all initiated a summer dormancy period by June and died back to crowns below ground level. Performance in this location was poor, and all plants winter-killed. The California PMC received half of the original seed.

PI-297991 and 297992 both produced seeds underground, which is a characteristic of T. megalanthum var. amphicarpum.

Trifolium pratense L.

red clover

PI-310461 ('Leisi'), 310463 ('Roggo'), and 310464 ('Rutti') from Switzerland, and PI-311488 through 311492 from Spain were grown and observed at Beltsville.

PI-310461 and 310464 did poorly here, with the former developing crown and root rot. PI-310463 was so severely browsed by deer that it was killed.

Of the Spanish accessions, PI-311488 looked very promising at this location. Plants were sub-erect with abundant fine stems and moderately abundant soft, well-distributed cauline leaves. Mature size was 9"x23", and seed ripened in June and July. Spring recovery was early and excellent. Plants were, however, susceptible to aphids.

PI-311489, 311491 and 311492 did poorly - all were weak and provided very little cover.

Trifolium repens L.

white clover

PI-311490, 311493 and 311494 from Spain were winter hardy at this location, while PI-314122 from the USSR was not.

PI-311494 was the best of the Spanish accessions, forming a vigorous, solid row. Row width was 35", and plant height was 3". No seed has been set. The other accessions from Spain were not as vigorous, but all three did have early spring recovery.

Trigonella arabica Nees

Arabian fenugreek

An erect, almost glabrous annual with few stems and few trifoliate leaves, native to the sandy areas of Lebanon, Palestine and Sinai.

PI-330683 from South Africa via Israel is an erect accession grown under greenhouse culture. It had few stems and leaves; bloomed April to May. Flowers were white, and the accession resembled Melilotus alba.

Vicia benghalensis L.

purple vetch

A climbing annual or biennial vetch found surviving on poor soils of southern Europe. Used as fodder in some agricultural areas, it is grown as a pasture legume on the Pacific Coast and in Argentina. Flowers are deep red to dark purple, and for optimum pollination should be worked by bees.

PI-289749 from Hungary was grown under greenhouse culture. Stems were moderately abundant and leaves were soft and very pubescent. Mature size staked was 65"x35".

PI-298011 from Portugal via Australia was very similar to PI-289749, although mature size (staked) was about 10 inches shorter.

Vicia galeata Boiss.

An annual, native to Asia Minor, found in swampy places usually by water. Flowers February to June in moist areas.

BN-18956 is a solitary annual vetch, sub-erect in habit with many medium-textured stems and a moderate amount of soft cauline leaves. Flowers are large, showy, and white with pink variegation. Potential as a conservation plant is questionable. The accession was grown under greenhouse culture.

Vicia humilis HBK.

A perennial weedy species found in Mexico in temperate climates at altitudes of about 6,000 feet, growing along roadsides and fence rows.

PI-343008 from Mexico is a perennial vine with moderately abundant sub-erect and prostrate stems. It is self-pollinating, had few leaves and is of questionable conservation value. We grew it in the greenhouse here.

Vicia hybrida L.

A cool season self-pollinating annual with scrambling stems and yellow flowers with purple stripes, the species is native to parts of the Mediterranean region and occurs in cultivated fields and field borders in the Riviera region.

PI-292504 from Israel had an abundance of fine sub-erect stems with a moderate amount of soft, cauline leaves. Leaves were alternate on a petiole with a terminal tendril, and most pods contained two large seeds. The accession matured and died rapidly in the greenhouse.

Vicia litinovii Boiss.

BN-18960 from the USSR was grown in the greenhouse. This accession is a solitary annual, erect to sub-erect in habit with many stems. Leaves are soft, cauline and very abundant. The plant reddens in color noticeably during seed maturation. Our plants died a month after setting seed. The species appears to have considerable resistance to aphids.

LEGUMES & OTHERVicia melanops Sibth.

An annual native from the central Mediterranean region to southern Euro-Siberia, it is found in thickets and forests. Plants are highly variable within the species. It is handled like Vicia lutea, V. hybrida, and V. pannonica.

BN-18962 is a solitary annual vine from the USSR, with many coarse stems, and a moderate amount of soft, well-distributed cauline leaves. Seed matured in mid-June, with little shattering.

Vicia pannonica Crantz

A pilose to villous annual, 3-8 decimeters long, with white to purplish-white villous flowers. Plants are erect or climbing. It is cultivated in the Pacific northwest for hay, silage, green manure, pasture and as a seed crop. It is native to central Europe, but can be found established in waste areas in the Willamette Valley, Oregon, and Sonoma County, California.

PI-289486 from Hungary, grown under greenhouse culture, is a vine with moderately abundant stems and many soft cauline leaves. Flowers are white, blooming period from June through August. A yellow-flowered Vicia contaminant was isolated from this accession and assigned BN-19209.

Vicia pisiformis L.

pea vetch

A large climbing perennial to 1-2 meters, similar to a pea; glabrous, with large oval leaflets and many yellowish flowered peduncles. The species is native to central Europe and western Asia in forests on soils derived from limestone.

PI-314124 is a very rhizomatous perennial vine from the USSR, 5 to 6 feet in length, with abundant stems and soft, well-distributed cauline leaves. It formed a very dense cover within a 4-foot radius around each plant and appears to have good erosion control applications.

Vicia sativa L.

common vetch

Accessions tested at the NPMC were PI-284096, 284457 and 284462 from Bulgaria via Australia; PI-284097 from Argentina via Australia. Two of the Bulgarian introductions, PI-284457 and 284096 seem to show the most promise as cover crop or green manure. In comparison, the other two accessions had very few stems and leaves. All accessions were grown in the greenhouse at Beltsville.

Vicia tenuifolia Roth

bramble vetch

A vigorous perennial vetch similar to V. cracca. Naturalized from Europe, it is locally established in Wisconsin on cultivated land.

BN-17910 from the USSR is a perennial, rhizomatous vine to 36 inches, with few coarse stems and a moderate amount of soft cauline leaves. The species does not set many seed at Beltsville.

Agropyron sibiricum

PI No.	Stems	Leaves	Mature Size	Vigor	Spring		Injury	Bloom	Date	
					Recovery	Lodging			Mature	NOTES
313961	A F E	F S C	22-18x10	G	E A	Mod.	L leafspot	6/12	7/10	
315361	A M-F E	F S-M C	35-22x10	G	E M	Mod.	M leafspot	6/17	7/16	
315362	A F E	F S C	24-18x13	Var.	E Var.	Ex.	L leafspot	6/17	7/16	
315363	M F E	F M C	22-16x10	F	E A*	-	L leafspot	6/17	7/15	
315364	A F E	M-F S B+C	30-18x9	-	E A*	-	-	6/17	7/18	
315365	A F E	M S C	40-18x18	E	E A	Var.	L leafspot	6/17	7/18	
315366	M F E	F-M S B+C	36-17x14	E	E A	-	M leafspot	6/17	7/18	
315367	M F E	F S C	28-20x2	Var.	E A*	-	L leafspot	6/17	7/18	

* = Some plants dead

Bromus riparius - Possible summer pasture species.

251683	A F E	M M B+C	42-24x15	G	E A	v.little	Severe leaf-spot	5/23	6/24	Poor accession
314072	A F E	A S B+C	40-23x20	G	E A	"	Light "	5/23	6/16	Variable plts - not exceptionally good
315372	A F E	A S C	33-20x30	G	E A	Ex.	v.severe "	6/11	6/20	Very palatable
315386	A M E	F S C	50-22x14	G	E A	L	Light "	5/26	6/18	Poor accession
315387	A F E	M S B+C	40-18x12	G	E A	None	Mod. "	5/23	6/17	Variable
315388	A M E	A M B+C	42-25x18	G	E A	Ex.	Mod. "	5/23	6/17	Looked good 10/31
315389	A M E	M S B+C	48-28x15	-	E A	V.Ex.	-	5/22	6/16	
315390	A M E	VA S B+C	42-22x14	Ex.	E A	Ex.	Light "	5/22	6/26	BEST - see Notes & Comment
315391	A M E	M M B+C	45-22x16	-	E A	-	Med. "	5/22	6/16	Variable
315392	A M E	M S B+C	44-29x18	G	E A	V.little	Light "	5/22	6/16	
315393	A M E	M S B+C	38-30x15	-	E A	-	-	5/22	6/17	Good summer growth
315394	A M E	M MS B+C	34-18x12	-	E A	-	Mod. "	5/17	6/17	Too much disease

Dactylis glomerata

Number	Origin	Stems	Leaves	Mature Size	Vigor	Spring Recovery	Lodging	Injury	Bloom	Date Maturity
BN-15862	Tunisia				weak	none				
PI-305497	Poland	A C E	MA S C	43-26x13	G	E A	none	Some leaf yellow	5/26	7/1
305498	Poland	F M C E	A S B&C	35-22x15	G	E A	-	Light leaf spot	5/26	6/24
311377	Spain	F M E	MF S B&C	28-12x10	F-P	ME MS	-	Light leaf spot	5/26	7/1-15
311385	Spain				W	none				
311386	Spain				P	none				
314080	USSR	F C E	A S B&C	35-20x12	G	E A	-	Light leaf spot	6/17	7/1
314242	USSR	F M E	F S B&C	28-13x10	P	E S	-	Some leaf spot	6/17	7/1-15
315412	USSR	A M E	M S B&C	36-12x10	G	E A	none	Light leaf spot	5/26	7/15
315413	USSR	M M E	M S B&C	36-15x14	G	E A	little	Light leaf spot	5/26	6/24-7/15
315414	USSR	A C E	A S B&C	40-24x15	E	E A	none	Light leaf spot	5/26	6/24-7/15
315415	USSR	MA C E	A S B&C	33-18x13	G	E A	none	Light leaf spot	5/26	6/24
315416	USSR	M M E	M S B&C	33-19x13	G	E A	none	Mod. leaf spot	5/26	6/24-7/1
315417	USSR	M C E	M S B&C	36-22x12	G	E A	none	Light leaf spot	5/26	7/1
315418	USSR	A C M E	M S B&C	38-24x12	G	E A	none	Light leaf spot	5/26	7/1
315419	USSR	A C E	A S B&C	35-21x13	E	E A	none	Light leaf spot	5/26	7/1-15
315420	USSR	F M E	A S B&C	32-18x11	E	E A	none	Light leaf spot	6/10	7/1-15
315421	USSR	M C E	M S B&C	36-18x11	G	E A	none	Light leaf spot	6/10	7/1-15
315422	USSR	A M E	F S B&C	38-21x12	G	E A	none	Light leaf spot	5/26	7/1-15
315423	USSR	A C E	A S B&C	40-26x13	E	E A	little	Light leaf spot	5/26	7/1
315424	USSR	A C E	A S B&C	40-28x12	E	E A	L-M	Light leaf spot	5/26	7/1-15
315425	USSR	M M C E	A S B&C	37-22x12	G	E A	-	Light leaf spot	6/1	7/1-15
315426	USSR	F M E	A S B&C	24-12x11	-	E A	-	Light leaf spot	6/17	7/15
320577	Finland	VF C E	A S B&C	26-12x10	G	E A	none	Light leaf spot	6/17	7/1-15

Legend: A = Abundant

M = Medium

F = Few

C = Coarse (stems); Cauline (leaves)

E = Erect

S = Soft

B = Basal

Mature size = Seed head height-leaf height x spread

Vigor: G = Good

F = Fair

P = Poor

E = Excellent

Spring Recovery: E = Early

A = Abundant

M = Medium

S = Sparse

"_" means not rated

<u>Number</u>	
BN-15862	Poor accession.
PI-305497	
305498	Low seed potential; leafy.
311377	Too variable.
311385	Poor accession. Might be <u>D. glomerata</u> v. <u>hispanica</u> .
311386	Possibly v. <u>hispanica</u> .
314080	Good leafy accession; good fall regrowth.
314242	Poor accession.
315412	Only fair fall regrowth.
315413	Fair to good fall regrowth and fall recovery.
315414	Lots of forage matter; uniform population and maturity; good fall recovery; large type.
315415	Variable plant growth habit and fall recovery.
315416	Notes on two plants only.
315417	Plants highly variable in growth.
315418	Very uniform population; good seed potential.
315419	Fairly uniform and leafy.
315420	Variable in leaf color and leaf spot.
315421	Variable leaf width.
315422	Variable fall recovery.
315423	Uniform, lots of hay per plant.
315424	Not as good as 315423, but better than many.
315425	Leafy, but very low seed potential.
315426	Variable plants.
320577	Leafy but low seed potential.

CURRENT SCARIFICATION & STRATIFICATION DATA

Species	Scarification Treatment	(Moist Peat & Perlite Medium) Stratification
<u>Amorpha canescens</u>	5 min. H_2SO_4	
<u>Amorpha fruticosa</u>	5 min. H_2SO_4	
<u>Aronia arbutifolia</u>		120 days @ 41°F.
<u>Ceanothus americanus</u>		24 hr. presoak in warm H_2O 60 days @ 41°F.
<u>Cercis canadensis</u>	30 min. H_2SO_4	60-75 days @ 41°F.
<u>Cornus amomum</u>		90-120 days @ 41°F.
<u>Cornus florida</u>		120+ days @ 41°F.
<u>Cytisus commutatus</u>	30-45 min. H_2SO_4	
<u>Elaeagnus umbellata</u>		90 days @ 41°F.
<u>Juniperus virginiana</u>		75-120 days @ 41°F.
<u>Ligustrum sp.</u>		90 days @ 41°F.
<u>Lonicera maackii</u>		60-75 days @ 41°F.
<u>Lonicera tatarica</u>		45-60 days @ 41°F.
<u>Lycium vulgare</u>		60 days @ 41°F.
<u>Malus baccata</u>		30-40 days @ 41°F.
<u>Myrica pensylvanica</u>		Remove wax 60-120 days @ 41°F.
<u>Parthenocissus quinquefolia</u>		90 days @ 41°F.
<u>Pinus nigra</u>		45-60 days @ 41°F.
<u>Pinus sylvestris</u>		60 days @ 41°F.
<u>Quercus palustris</u>		(Wood chips) 45 days @ 41°F.
<u>Rhamnus frangula</u>		90 days @ 41°F.
<u>Rhodotypos scandens</u>		30 days @ 75°F. 90 days @ 41°F.

CURRENT SCARIFICATION AND STRATIFICATION DATA

<u>Species</u>	<u>Scarification Treatment</u>	<u>(Moist Peat & Perlite Medium) Stratification</u>
<u>Rhus aromatica</u>	1 hr. H_2SO_4	Some lots 30 days @ 41°F.
<u>Rhus copallina</u>	1-2 hrs. H_2SO_4	
<u>Rhus glabra</u>	2-3 hrs. H_2SO_4	
<u>Robinia fertilis</u>	15 min. H_2SO_4	
<u>Rosa wichuraiana</u>		45-60 days @ 41°F.
<u>Syringa amurensis</u> var. <u>japonica</u>		40-120 days @ 41°F.
<u>Syringa villosa</u>		90 days @ 41°F.
<u>Syringa vulgaris</u>		90 days @ 41°F.

Note: Following acid scarification and a water rinse, seed lots are placed in a basic solution to neutralize any acid still remaining on the seed coat.

SUMMARY OF REIDENTIFICATIONS - 1969

PI No.	BN No.	Original Identification	Reidentified as:
-	4519	Desmodium tortuosum	Desmodium rigidum (Ell.) DC.
-	5835	Desmodium sp.	Desmodium tortuosum (Sw.) DC.
-	5887	Lupinus amarillis	Lupinus luteus L.
-	7223	Briza minor	Eragrostis obtusa Munro ex Fic. & Hiern.
	12899	Helianthemum sp.	Helianthemum apenninum (L.) Mill.
121096	2591	Astragalus sp.	Astragalus glycyphyllos L.
149835	3606	Tephrosia sp.	Tephrosia subtriflora Hochst. ex Bak.
150557	3648	Astragalus sp.	Astragalus sinicus L.
150564	3640	Medicago ruthenica	Trigonella popovii E.Kor. ex char.
165715	5118	Crotalaria sp.	Crotalaria incana L.
168633	5397	Trifolium angustifolium	Trifolium cf. diffusum Ehrh.
170017	14211	Vicia narbonensis	Vicia sativa L.
180408	AM-1972	Bothriochloa ischaemum	Cymbopogon parkeri Stapf
181588	5915	Lupinus sp.	Lupinus luteus L.
186308	6311	Dactylis voronovii	Dactylis glomerata L.
188559	6651	Desmodium distortum	Desmodium axilliare (Sw.) DC.
193683	16292	Vicia onobrychoides	Vicia benghalensis L.
193950	7146	Lespedeza cyrtobotrya	Lespedeza hedysaroides (Pall.) Kitag.
197574	7389	Lupinus luteus	Lupinus varius L. ex char.
197860	7433	Medicago tuberculata	Medicago tornata (L.) Mill.
198088	7843	Festuca elatior	Festuca arundinacea Schreb.
199265	16290	Vicia benghalensis	Vicia hybrida L.
200233	7805	Glycine sp.	Teramnus labialis (L.) Spreng.
200403	7836	Medicago tuberculata	Medicago turbinata (L.) All.
219602	10246	Onobrychis sp.	Onobrychis cf. iberica Grossh.
220058	14181	Vicia sp.	Lathyrus inconspicuus L.
220880	14026	Vicia atropurpurea	Vicia benghalensis L.
232567	9127	Lotus purshianus	Lotus sp.
233284	8535	Trifolium sp.	Trifolium tomentosum var. lanatum Zoh.
234731	14208	Vicia lutea	Vicia hybrida L.
238249	8694	Bromus ramosus	Bromus inermis Leyss.
238313	8757	Festuca abyssinica	Koeleria phleoides (Vill.) Pers.
238375	8817	Vicia cornigera	Vicia sativa L.
238376	8818	Vicia globosa	Vicia sativa L.
238379	8821	Vicia macrocarpa	Vicia sativa L.

SUMMARY OF REIDENTIFICATIONS - 1969

PI No.	BN No.	Original Identification	Reidentified as:
246736	7906	Lotus tenuis	Lotus glinoides Del. ex char.
249882	14199	Vicia sp.	Vicia villosa Roth.
251676	14088	Vicia pannonica	Vicia sativa L.
255363	10174	Festuca spectabilis	Festuca arundinacea Schreb.
268206	11428	Aegilops sp.	Aegilops cf. triuncialis L.
271671	11673	Desmodium intortum	Desmodium adscendens (Sw.) DC.
280629	12367	Lupinus palaestinus	Lupinus angustifolius L.
281863	12410	Agropyron junceum	Agropyron varnense (Vel.) Hayek
282382	12415	Poa sp.	Poa cf. australis R.Br. (sens. lat.)
282383	8919	Poa sp.	Poa cf. australis R.Br. (sens. lat.)
282384	12416	Poa sp.	Poa cf. australis R.Br. (sens. lat.)
283173	12496	Agrostis capillaris	Agrostis tenuis Sibth.
283325	12637	Festuca varia	Festuca arundinacea Schreb.
284313	13264	Vicia dasycarpa	Lathyrus aphaca L.
286294	AM-1450	Glycine javanica	Rhynchosia minima (L.) DC.
286470	13621	Vicia (hybrid)	Vicia sativa L.
289667	13905	Melilotus sp.	Melilotus sulcata Desf.
289668	13906	Melilotus sp.	Melilotus sulcata Desf.
289670	13908	Phalaris sp.	Phalaris aquatica L.
290380	13939	Melilotus alba	Melilotus officinalis (L.) Desr.
290388	13947	Melilotus arvensis	Melilotus officinalis (L.) Desr.
295663	13729	Medicago sp.	Medicago turbinata (L.) All.
297868	15127	Agropyron caninum	Brachypodium sylvaticum (Huds.) Beauv.
297896	15154	Agropyron sp.	Agropyron pectiniforme Roem. & Schult.
297947	15205	Poterium polygamum	Sanguisorba minor Scop.
297948	15206	Poterium polygamum	Sanguisorba albanica Andrasovsky & Jav.
300015	15505	Lotus major	Lotus strictus Fisch. & Mey.
302993	15542	Agropyron desertorum	Agropyron sibiricum (Willd.) Beauv.
308120	16442	Vicia sicula	Vicia sativa L.
309950	16529	Axonopus sp.	Eleusine tristachya (Lam.) Lam.
309984	16559	Chloris sp.	Tridens brasiliensis Nees ex Steud.
310430	16941	Stipa sp.	Stipa capillata L.
311104	16950	Desmodium sp.	Desmodium cinereum (HBK.) DC.
311105	16951	Desmodium sp.	Desmodium nicaraguense Oerst. ex Benth. & Oerst.
311122	16952	Desmodium sp.	Desmodium intortum (Mill.) Urb.
311333	16958	Agropyron intermedium	Agropyron repens (L.) Beauv.
311420	16989	Lolium perenne	Lolium (hybrid)(L. perenne L. X L. rigidum Gaud.)

SUMMARY OF REIDENTIFICATIONS - 1969

PI No.	BN No.	Original Identification	Reidentified as:
312129	17091	Desmodium sp.	Desmodium intortum (Mill.) Urb.
312130	17092	Desmodium sp.	Desmodium neomexicanum Gray
312170	17094	Desmodium sp.	Desmodium cinereum (HBK.) DC.
312172	17096	Desmodium sp.	Desmodium axillare (Sw.) DC.
314096	17362	Melilotus sp.	Melilotus officinalis (L.) Desr.
314196	17402	Agropyron sp.	Agropyron drobovii Nevski
314197	17403	Agropyron sp.	Agropyron repens (L.) Beauv.
314198	17404	Agropyron sp.	Agropyron praecaespitosum Nevski
314199	17405	Agropyron sp.	Agropyron cf. leptourum (Nevski) Grossh.
314200	17406	Agropyron sp.	Agropyron ugamicum Drob.
314201	17407	Agropyron sp.	Agropyron drobovii Nevski
314204	17410	Agropyron sp.	Agropyron ugamicum Drob.
314208	17412	Agropyron sp.	Agropyron cf. leptourum (Nevski) Grossh.
314210	17413	Agropyron sp.	Agropyron caninum (L.) Beauv.
314211	17414	Agropyron sp.	Agropyron praecaespitosum Nevski
314310	17444	Poa sp.	Poa angustifolia L.
314312	17445	Poa sp.	Poa sterilis Bieb.
314355	17452	Alopecurus pratensis	Alopecurus arundinaceus Poir.
314356	17453	Alopecurus ventricosus	Alopecurus arundinaceus Poir.
314583	17524	Poa sp.	Poa angustifolia L.
314622	17622	Agropyron sp.	Agropyron praecaespitosum Nevski
314631	17541	Agropyron sp.	Agropyron ugamicum Drobov
314666	17549	Elymus junceus	Elymus multicaulis Kar. & Kir.
314673	17554	Elymus sp.	Elymus angustus Trin.
314676	17557	Elymus sp.	Elymus aff. alaicus Korsh. ex char.
314704	17571	Lotus corniculatus	Lotus krylovii Schiskin & Serg.
314718	17572	Melilotus sp.	Melilotus officinalis (L.) Desr.
314719	17573	Melilotus sp.	Melilotus officinalis (L.) Desr.
314734	17577	Poa sp.	Poa pratensis L.
314735	17578	Poa sp.	Poa sterilis Bieb.
314737	17580	Poa sp.	Poa angustifolia L.
314766	17910	Vicia sp. ...	Vicia tenuifolia Roth
315372	17604	Bromus biebersteinii	Bromus riparius Rehm.
315380	17611	Bromus inermis	Bromus riparius Rehm.
315687	8546	Cytisus praecox Bean	Cytisus commutatus (Willk.) Briq. ex char.
315717	7933	Melilotus neapolitana	Melilotus officinalis (L.) All.

PI No.	BN No.	Original Identification	Reidentified as:
315864	17702	Elymus canadensis	Elymus virginicus
316179	17744	Calamagrostis canescens	Poa palustris L.
316210	17767	Desmodium angustifolium	Desmodium rigidum (Ell.) DC.
316252	17794	Festuca varia	Festuca arundinacea Schreb.
316269	17806	Lotus sp.	Lotus tenuis Kit.
316352-53	17881-82	Trifolium neglectum	Trifolium fragiferum L.
318638	18012	Lespedeza daurica	Lespedeza cuneata (Dum. Cours.) G. Don
319815	18176	Alopecurus arundinaceus	Alopecurus pratensis L.
316951	17949	Crotalaria sp.	Crotalaria anagyroides HBK.
316952	17950	Crotalaria sp.	Crotalaria brachystachya Benth.
316954	17952	Crotalaria sp.	Crotalaria lanceolata E. Mey.
321396	18221	Lolium multiflorum	Lolium hybrid: L. perenne X L. multiflorum
321679	18246	Lolium multiflorum	Lolium hybrid: L. perenne X L. multiflorum
322289	18274	Aeschynomene sp.	Aeschynomene falcata (Poir.) DC.
322290	18275	Aeschynomene sp.	Aeschynomene americana L.
322304	18284	Calopogonium sp.	Vigna luteola (Jacq.) Benth.
322340	18312	Centrosema sp.	Centrosema virginianum (L.) Benth.
322343	18314	Centrosema sp.	Vigna luteola (Jacq.) Benth.
322345	18316	Centrosema sp.	Centrosema aff. virginianum (L.) Benth.
322348	18317	Centrosema sp.	Centrosema aff. virginianum (L.) Benth.
322349-356	18318-325	Centrosema sp.	Centrosema virginianum (L.) Benth.
322402	18341	Crotalaria sp.	Crotalaria incana L.
322403	18342	Crotalaria sp.	Crotalaria spectabilis Roth
322405	18344	Crotalaria sp.	Crotalaria incana L.
322408-409	18345-346	Crotalaria sp.	Crotalaria lanceolata E. Mey.
322502	18414	Desmodium sp.	Desmodium distortum (Aubl.) Macbr.
322512-514	18417-419	Desmodium sp.	Desmodium distortum (Aubl.) Macbr.
322520	18420	Desmodium sp.	Desmodium distortum (Aubl.) Macbr.
322540	18436	Eriosema sp.	Rhynchosia minima (L.) DC.
322545	18441	Indigofera sp.	Indigofera mucronata Spreng. ex DC.
322548	18444	Indigofera sp.	Indigofera hirsuta L.
322619-625	18474-480	Rhynchosia sp.	Rhynchosia minima (L.) DC.
325500	18700	Trifolium neglectum	Trifolium fragiferum L.
325184	18617	Agropyron lavrenkoanum	Agropyron sibiricum (Willd.) Beauv.
325219	18632	Brachypodium sp.	Brachypodium pinnatum (L.) Beauv.
325446	18687	Onobrychis sp.	Onobrychis aff. biebersteinii G. Ser.
325447	18688	Onobrychis sp.	Onobrychis arenaria DC.
325448	18689	Onobrychis sp.	Onobrychis altissima A. Grossh. ex char.

SUMMARY OF REIDENTIFICATIONS - 1969

PI No.	BN No.	Original Identification	Reidentified as:
330676	18810	Lotus creticus	Lotus collinus (Boiss.) Heldr.
330715	18842	Onobrychis sp.	Onobrychis subacaulis Boiss.
331155	18858	Pappophorum sp.	Pappophorum pappiferum (Lam.) Kuntze
331180	18863	Panicum virgatum	Panicum antidotale Retz.
331385	18868	Echinochloa sp.	Echinochloa colonum (L.) Link
331387	18869	Echinochloa sp.	Echinochloa pyramidalis (Lam.) Hitchc. & Chase
336997	18880	Crotalaria sp.	Crotalaria incana L.
337037	18888	Stylosanthes sp.	Stylosanthes guyanensis (Aubl.) Sw.
337554	18900	Pappophorum sp.	Pappophorum pappiferum (Lam.) Kuntze
337595	18923	Sesbania sp.	Sesbania exasperata HBK.
338643	19018	Lotus arenarius	Lotus creticus L.
338655	19029	Panicum bulbosum	Panicum maximum Jacq.

CHANGES IN NOMENCLATURE

Original Name	New Name
Agropyron trichophorum	Agropyron intermedium var. trichophorum (Link) Halac.
Festuca orientalis	Festuca arundinacea Schreb.
Melilotus messanensis	Melilotus sicula (Turra) B.C.Jacks.
Dactylis woronowii Ovcz.	Dactylis glomerata ssp. woronowii (Ovcz.) Stebbins & Zohary
Panicum purpurascens	Brachiarria mutica (Forsk.) Stapf
Phleum nodosum	Phleum bertolonii DC.
Ischaemum ciliare Retz.	Ischaemum indicum (Houtt.) Merr.
Vigna cylindrica (L.) Skeels	Vigna unguiculata (L.) Walp.
Vigna sesquipedalis (L.) Fruwirth	Vigna unguiculata (L.) Walp.
Vigna sinensis (Torner) Savi	Vigna unguiculata (L.) Walp.

Information compiled from Summaries No. 34, 35, 36 and 37, January through December 1969, from Plant Introduction Investigations, New Crops Research Branch, ARS.

National Plant Materials Center
Domestic Distribution of Seed in 1969

Genera	Number of Packets Distributed to:			
	North- east	Mid- west	South- east	West
Adesmia.....			16	
Agropyron.....	5	5	34	37
Agrostis.....				1
Alnus.....	3			
Alopecurus.....		5	2	1
Andropogon.....	7			
Anthyllis.....			5	
Arachis.....				1
Arrhenatherum.....		1		1
Arundinella.....			2	1
Aspalathus.....				4
Astragalus.....	1			
Astrebla.....				1
Atriplex.....			32	48
Berberis.....	1			
Bothriochloa.....	1		3	1
Brachiaria.....			11	4
Brachypodium.....	2			
Bromus.....	11	17	2	14
Callicarpa.....			7	
Calycanthus.....	1			
Carpinus.....	2			
Cenchrus.....				2
Chloris.....			80	28
Colutea.....	2			
Coronilla.....	15			13
Crataegus.....	8			
Crotalaria.....			4	
Cynodon.....			2	
Cytisus.....	11	3	10	1
Dactylis.....	7	14	2	6
Dactyloctenium.....	2		1	
Desmodium.....			6	3
Dolichos.....			3	2
Echinochloa.....			4	2
Eleusine.....			1	
Elymus.....	1	4	2	
Eragrostis.....	2		61	7
Erianthus.....	2			
Eulalia.....	1		1	
Euonymus.....	1			
Festuca.....	6	3	3	5
Halesia.....	3			

National Plant Materials Center
Domestic Distribution of Seed in 1969

Genera	Number of Packets Distributed to:			
	North- east	Mid- west	South- east	West
Hordeum.....			2	
Hyparrhenia.....			1	2
Juglans.....			5	
Kochia.....			12	
Koeleria.....				10
Lasiagrostis.....				2
Lathyrus.....	9	7		
Leptochloa.....	1		1	1
Lespedeza.....	12			4
Lolium.....			6	5
Lotononis.....			1	
Lotus.....			6	2
Lupinus.....			5	
Medicago.....			1	
Melica.....				9
Miscanthus.....	1			
Molinia.....				1
Onobrychis.....	1			
Oryzopsis.....			4	2
Pachyrhizus.....			1	
Panicum.....	16		8	8
Pappophorum.....			1	
Paspalum.....			21	1
Pennisetum.....			3	7
Phalaris.....	4	2	1	28
Phleum.....		1		
Photinia.....	2			
Pinus.....			5	4
Poa.....	1	1		1
Ptelea.....	1			
Sanguisorba.....				12
Secale.....				2
Setaria.....	1		11	15
Sorghum.....			1	14
Sporobolus.....	1		1	4
Stipa.....			7	3
Stizolobium.....			1	
Stylosanthes.....			1	1
Syringa.....	9			
Tephrosia.....	1		1	
Tetrachne.....			2	

National Plant Materials Center
Domestic Distribution of Seed in 1969

Genera	Number of Packets Distributed to:			
	North- east	Mid- west	South- east	West
Tetragonolobus.....:			4	1
Tetrapogon.....:			1	
Trichachne.....:	1			
Trifolium.....:	2		8	70
Trigonella.....:			1	3
Tripsacum.....:			2	
Urochloa.....:			1	
Viburnum.....:	2			
Vicia.....:			13	81
Vigna.....:			1	1
Zoysia.....:				1
TOTALS:	160	63	434	478

Total Genera: 95
Total Packets: 1135

National Plant Materials Center
Domestic Distribution of Vegetative Material in 1969

BN No.	Species	Type and Amount of Material
18790	Acacia cyclops PI-330654	22 plts.
18104	Alyssum murale	20 plts.
18111	Alyssum wulfenianum	12 plts.
16906	Amelanchier spicata	3 plts.
18177	Ammophila arenaria PI-319816	plts for 2 rod rows
9026	Ammophila breviligulata	350 culms
18968	Brachiaria ruziziensis PI-338220	stolons
18969	Brachiaria ruziziensis PI-338221	stolons
18970	Brachiaria ruziziensis PI-338225	stolons
19297	Brachiaria ruziziensis PI-344764	stolons
19298	Brachiaria ruziziensis PI-344765	stolons
19299	Brachiaria ruziziensis PI-344766	stolons
16914	Caragana sp. PI-310390	10 plts.
17457	Carex verna PI-314366	plts for rod row
8299	Castanea mollissima	100 plts.
4158	Cynodon dactylon 'Tufcote' bermudagrass	30 sq. ft. sod
12888	Desmodium cinerascens PI-282691	5 ctgs.
16952	Desmodium sp. PI-311122	3 ctgs.
17094	Desmodium sp. PI-312170	5 ctgs.
17096	Desmodium sp. PI-312172	2 ctgs.
17993	Desmodium sp. PI-317895	5 ctgs.
18124	Desmodium sp. PI-319471	4 ctgs.
18715	Desmodium sp.	4 ctgs.
18761	Desmodium sp.	4 ctgs.
18543	Elaeagnus angustifolia PI-323972	100 plts.
9835	Elaeagnus umbellata	250 plts.
17493	Euonymus fortunei 'Longwood'	30 plts
17351	Festuca arenaria PI-314083	plts for rod row
12623	Festuca rubra var. pruinosa	plts for 2 rod rows
14604	Helianthemum variable PI-292853	40 plts.
12900	Hypericum calycinum	16 ctgs.
11599	Ischaemum timorense	7 plts.
13597	Ligustrum acutissimum	whips
18753	Ligustrum ovalifolium	74 ctgs.
14024	Ligustrum sp.	whips
10762	Liriope graminifolia	40 plts.
10763	Liriope graminifolia	40 plts.
10764	Liriope graminifolia	60 plts.
11065	Liriope muscari 'Munroi #1'	60 plts.
11062	Liriope sp. 'Majestic'	60 plts.
11063	Liriope sp. 'Big Blue'	60 plts.
11067	Liriope sp. 'Curly Twist'	60 plts.
11069	Liriope sp. 'Wonder Evergreen'	40 plts.
8419	Lonicera maackii	25 plts.
17142	Lonicera maackii erubescens	10 plts.
15108	Olea europea PI-298030	7 ctgs.

National Plant Materials Center

Domestic Distribution of Vegetative Material in 1969

BN No.	Species	Type and Amount Material
10792	Ophiopogon sp.	40 plts.
13500	Pachistima canbyi	16 ctgs.
8553	Panicum amarum	100 rhizomes
15068	Phalaris arundinacea PI-297362	75-100 div.
11030	Potentilla tridentata	16 ctgs.
18270	Pueraria sp.	2 plts.
19173	Pyrus calleryana 'Bradford'	4 plts.
17707	Rosa helenae PI-315870	25 plts.
17710	Rosa rubrifolia PI-315873	4 plts.
12057	Rosa sp.	60 plts.
12911	Santolina chamaecyparissus	16 ctgs.
12912	Santolina virens	16 ctgs.
8120	Zoysia japonica Z-73	1 bu. sprigs.

Bulk Seed Shipments - 1969

BN No.	Species	Amount
5688-67	Agropyron dasystachyum P-1822	1/2 lb.
6091-67	Agropyron intermedium	1/4 lb.
6106-67	Agropyron riparium SODAR	1/2 lb.
3837-64	Agropyron sibiricum A-10675	1/2 lb.
18758-66	Andropogon barbinodis	1/4 lb.
19091-66	Andropogon perforatus	1/4 lb.
3861-69	Castanea mollissima	14 lbs.
8299-69	Castanea mollissima	6 lbs.
4333-68	Elaeagnus umbellata	0.9 lb.
16205-62	Elymus junceus VINALL	1/2 lb.
17098-62	Eragrostis lehmanniana	1/8 lb.
12066-66	Lathyrus sylvestris	18 lbs, 12 oz.
14773-61	Leptochloa dubia	1/4 lb.
3490-69	Quercus acutissima	75 lbs.
11360-69	Quercus acutissima	3 lbs.
14638-69	Quercus acutissima	11 lbs, 5 $\frac{1}{2}$ oz.
18947-69	Quercus acutissima	25 lbs.
14775-66	Setaria macrostachya	1/4 lb.
16330-65	Sporobolus cryptandrus	1/8 lb.
19092-67	Trichachne californica	1/4 lb.

NATIONAL PLANT MATERIALS CENTER

1969 Seed Production

Grasses

GENUS				Amount of
- Species	BN No.	PI No.	Original Source	Seed
AGROPYRON				
caninum	17533	314612	U.S.S.R.	48 gr.
caninum	17535	314615	U.S.S.R.	29 gr.
caninum	17536	314616	U.S.S.R.	63 gr.
cristatum	17527	314596	U.S.S.R.	122 gr.
cristatum	17529	314598	U.S.S.R.	43 gr.
cristatum	17723	316120	U.S.S.R. via Austra.	139.5 gr.
cristatum	18819	330686	Iran	0.1 gr.
desertorum	17399	314187	U.S.S.R.	28.9 gr.
desertorum	17532	314604	U.S.S.R.	55.7 gr.
desertorum	17724	316121	Sweden via Australia	38.6 gr.
elongatum	8667	238222	Belgium via Australia	1.6 gr.
elongatum	11237	264770	Germany	61.8 gr.
elongatum	17588	315352	U.S.S.R.	104.5 gr.
gracillimum	17334	313960	U.S.S.R.	0.5 gr.
intermedium	17589	315354	U.S.S.R.	85.5 gr.
intermedium	17590	315355	U.S.S.R.	108.5 gr.
intermedium	17725	316122	U.S.S.R. via Australia	87.3 gr.
intermedium	18876	-	BN selection	7.8 gr.
intermedium	18877	-	BN selection	1.4 gr.
intermedium	18878	-	BN selection	0.9 gr.
junceum	14478	292581	Israel	trace
cf. leptourum	17405	314199	U.S.S.R.	trace
leptourum	17408	314202	U.S.S.R.	49 gr.
pectiniforme	17113	312438	U.S.S.R.	37.4 gr.
pectiniforme	17591	315356	U.S.S.R.	0.2 gr.
pectiniforme	17592	315357	U.S.S.R.	22.3 gr.
pectiniforme	17593	315358	U.S.S.R.	32 gr.
pectiniforme	17594	315359	U.S.S.R.	3.5 gr.
praecaespi.	17537	314622	U.S.S.R.	9.4 gr.
sibiricum	17335	313961	U.S.S.R.	47 gr.
sibiricum	17595	315361	U.S.S.R.	115.5 gr.
sibiricum	17596	315362	U.S.S.R.	11.6 gr.
sibiricum	17597	315363	U.S.S.R.	25.6 gr.
sibiricum	17598	315364	U.S.S.R.	53.1 gr.
sibiricum	17599	315365	U.S.S.R.	41.3 gr.
sibiricum	17600	315366	U.S.S.R.	98.5 gr.
sibiricum	17601	315367	U.S.S.R.	75.5 gr.
subulatum	8930	204379	Turkey	5 gr.
trachycaulum	17676	315494	U.S.S.R.	3.7 gr.
trichophorum	3661	150130	Australia	18.5 gr.
trichophorum	9725	229576	Iran	39.7 gr.
transcaspica	12497	283174	U.S.S.R. Via Australia	0.8 gr.
ALOPECURUS				
arundinaceus	9735	229529	Iran	trace
arundinaceus	11210	264547	Sweden	5 gr.
arundinaceus	17452	314355	U.S.S.R.	10.8 gr.

1969 Seed Production - Grasses

GENUS				Amount of
Species	BN No.	PI No.	Original Source	Seed
ALOPECURUS				
arundinaceus	17453	314356	U.S.S.R.	3.4 gr.
dasyanthus	12498	283175	U.S.S.R. via Australia	trace
pratensis	11050	265564	Netherlands	13 gr.
pratensis	15963	-	Netherlands (polycross)	29.8 gr.
ARRHENATHERUM				
elatus	17603	315370	U.S.S.R.	5 oz.
elatus	17728	316160	Spain via Australia	22 gr.
elatus	17729	316161	Australia	40.5 gr.
elatus	19008	338629	Morocco	9.5 gr.
ARUNDINELLA				
hirta	18258	-	Korea	4 $\frac{1}{4}$ oz.
hirta	18262	-	Korea	19.3 gr.
hirta	18264	-	Korea	62.5 gr.
hirta	18267	-	Korea	70.2 gr.
BOTHRIOCHLOA				
ischaemum	4419	-	BN selection	3.7 gr.
ischaemum	11499	269364	Afghanistan	29.5 gr.
ischaemum	18624	325211	U.S.S.R.	11.5 gr.
ischaemum	18625	325212	U.S.S.R.	10.2 gr.
ischaemum	18831	330698	Iran	31.7 gr.
ischaemum	18832	330669	Iran	trace
BRACHYPODIUM				
phoenicoides	6291	186288	France via Australia	64 gr.
pinnatum	6210	185135	Iraq	4.3 gr.
pinnatum	8276	206545	Greece	10.5 gr.
pinnatum	8945	206682	Turkey	3.5 gr.
pinnatum	9156	--	BN selection	2.2 gr.
pinnatum	9396	230112	Iran	8.1 gr.
pinnatum	9752	251803	Italy	2.2 gr.
pinnatum	9836	253298	Yugoslavia	2 seeds
rupestre	17735	316170	U.S.S.R. via Australia	trace
sylvaticum	8277	206546	Greece	109 gr.
sylvaticum	8278	206547	Greece	11-1/8 oz.
sylvaticum	9677	251102	Yugoslavia	2.5 gr.
sylvaticum	13710	287787	Spain	3 gr.
BRIZA				
erecta	12459	282880	Uruguay	37.8 gr.
fusca	12460	282881	Uruguay	26.9 gr.
maxima	19208	-	ARS	6.3 gr.
BROMUS				
benekenii	17543	314646	U.S.S.R.	4 $\frac{1}{2}$ oz.
erectus	9682	251107	Yugoslavia	40.5 gr.
erectus	9841	253301	Yugoslavia	3.8 gr.
erectus	15280	253193	Yugoslavia	152 gr.
erectus	16971	311371	Spain	13.5 gr.
inermis	8694	238249	Sweden via Australia	7.4 gr.
inermis	13762	-	Virginia	48 gr.

1969 Seed Production - Grasses

GENUS				Amount of
Species	BN No.	PI No.	Original Source	Seed
BROMUS				
inermis	17519	314567	U.S.S.R.	24.2 gr.
inermis	17605	315374	U.S.S.R.	38.2 gr.
inermis	17606	315375	U.S.S.R.	4 oz.
inermis	17607	315376	U.S.S.R.	19.8 gr.
inermis	17610	315379	U.S.S.R.	9+ oz.
inermis	17612	315381	U.S.S.R.	4½ oz.
inermis	17613	315382	U.S.S.R.	7-3/4 oz.
inermis	17614	315383	U.S.S.R.	5-5/8 oz.
inermis	17615	315384	U.S.S.R.	105 gr.
inermis	17616	315385	U.S.S.R.	4¼ oz.
inermis	17609	315378	U.S.S.R.	9.3 gr.
inermis	18545	324487	ex PI-315370 U.S.S.R.	17.7 gr.
inermis	18634	325227	U.S.S.R.	25.3 gr.
inermis	18734	326258	U.S.S.R.	trace
inermis	18735	326259	U.S.S.R.	0.6 gr.
inermis	18736	326260	U.S.S.R.	1 gr.
inermis	18740	326264	U.S.S.R.	3.2 gr.
inermis	18741	326265	U.S.S.R.	0.6 gr.
japonicus	15871	340774	Tunisia	46 gr.
riparius	15287	251683	U.S.S.R.	7-7/8 oz.
riparius	17346	314072	U.S.S.R.	4 oz.
riparius	17499	314513	U.S.S.R.	100 gr.
riparius	17500	314514	U.S.S.R.	13.7 gr.
riparius	17501	314515	U.S.S.R.	106.3 gr.
riparius	17502	314516	U.S.S.R.	12-7/8 oz.
riparius	17604	315372	U.S.S.R.	129 gr.
riparius	17611	315380	U.S.S.R.	100.5 gr.
riparius	17617	315386	U.S.S.R.	7-3/4 oz.
riparius	17618	315387	U.S.S.R.	9½ oz.
riparius	17619	315388	U.S.S.R.	8½ oz.
riparius	17620	315389	U.S.S.R.	12 oz.
riparius	17621	315390	U.S.S.R.	6¼ oz.
riparius	17622	315391	U.S.S.R.	6 oz.
riparius	17623	315392	U.S.S.R.	7-3/4 oz.
riparius	17624	315393	U.S.S.R.	1 lb.
riparius	17625	315394	U.S.S.R.	167.5 gr.
riparius	17628	315397	U.S.S.R.	4 oz.
sitchensis	8613	202534	Belgium	6-3/4 oz.
unioloides	18909	337517	Argentina	1 lb., 12 oz.
valdivianus	7425	197852	Argentina	9¼ oz.
variegatus	17627	315396	U.S.S.R.	30.7 gr.
vernalis	8001	-	Spain	18.1 gr.
willdenowii	4426	158372	New Zealand	1 lb.
willdenowii	5328	168564	Australia	11 oz.
willdenowii	6465	185500	South Africa	12-3/4 oz.
willdenowii	7422	197849	Argentina	65.5 gr.
willdenowii	7995	237793	Spain	136 gr.
willdenowii	8612	187000	Alaska	1 lb. 11½ oz.

1969 Seed Production - Grasses

GENUS				Amount of
Species	BN No.	PI No.	Original Source	Seed
BROMUS				
willdenowii	9607	202359	Argentina	111 gr.
willdenowii	9608	202360	Argentina	19 gr.
willdenowii	9645	219803	Chile	38.5 gr.
sp.	7989	-	Spain	31 gr.
sp.	7996	-	Spain	25.3 gr.
CALAMAGROSTIS				
arundinacea	12526	283207	U.S.S.R. via Australia	19.4 gr.
arundinacea	13625	286474	Japan	11 gr.
epigeios	17745	316180	Poland via Australia	0.9 gr.
pseudo-phragmites	17747	316182	Sweden via Australia	0.9 gr.
CHLORIS				
gayana	13478	284793	India via Australia	7-3/4 oz.
ventricosa	10461	257692	North Australia	11 gr.
CHRYSOPOGON				
gryllus	6219	185145	Iraq	5.4 gr.
gryllus	9942	254885	Iraq	3.5 gr.
montanus	6218	185144	Iraq	9 gr.
CYMBOPOGON				
tortilis	9246	246764	Japan	41.8 gr.
DACTYLIS				
aschersoniana	17766	316209	Bulgaria via Australia	9.8 gr.
glomerata	6311	186308	Sweden via Australia	43 gr.
glomerata	6614	180831	Turkey	43 gr.
glomerata	8079	201887	Israel	trace
glomerata	11413	269846	Tunisia	17.3 gr.
glomerata	11447	268233	Iran	5.7 gr.
glomerata	11532	270397	U.S.S.R.	11.5 gr.
glomerata	15967	305497	Poland	70.2 gr.
glomerata	15968	305498	Poland	5.5 gr.
glomerata	17060	311377	Spain	7 gr.
glomerata	17115	312449	U.S.S.R.	12.5 gr.
glomerata	17348	314080	U.S.S.R.	34.8 gr.
glomerata	17421	314421	U.S.S.R.	52.7 gr.
glomerata	17422	314242	U.S.S.R.	1.4 gr.
glomerata	17424	314244	U.S.S.R.	0.3 gr.
glomerata	17475	314432	U.S.S.R.	9.5 gr.
glomerata	17476	314433	U.S.S.R.	2.5 gr.
glomerata	17546	314656	U.S.S.R.	1.5 gr.
glomerata	17630	315411	U.S.S.R.	3.8 gr.
glomerata	17631	315412	U.S.S.R.	15 gr.
glomerata	17632	315412	U.S.S.R.	44.7 gr.
glomerata	17633	315414	U.S.S.R.	80.3 gr.
glomerata	17634	315415	U.S.S.R.	56.5 gr.
glomerata	17635	315416	U.S.S.R.	16.2 gr.
glomerata	17636	315417	U.S.S.R.	18.8 gr.
glomerata	17637	315418	U.S.S.R.	67.3 gr.

1969 Seed Production - Grasses

GENUS				Amount of
Species	BN No.	PI No.	Original Source	Seed
DACTYLIS				
glomerata	17638	315419	U.S.S.R.	38.7 gr.
glomerata	17639	315420	U.S.S.R.	25 gr.
glomerata	17640	315421	U.S.S.R.	37 gr.
glomerata	17641	315422	U.S.S.R.	43.5 gr.
glomerata	17642	315423	U.S.S.R.	72 gr.
glomerata	17643	315424	U.S.S.R.	65 gr.
glomerata	17644	315425	U.S.S.R.	6.8 gr.
glomerata	17645	315426	U.S.S.R.	7.1 gr.
glomerata	18195	320557	Finland	10.2 gr.
glomerata	18641	325287	U.S.S.R.	trace
glomerata	18642	325288	U.S.S.R.	1.2 gr.
glomerata	18643	325290	U.S.S.R.	2 gr.
glomerata	18644	325294	U.S.S.R.	2.1 gr.
glomerata	18645	325296	U.S.S.R.	trace
glomerata	18647	325302	U.S.S.R.	0.7 gr.
glomerata	18648	325303	U.S.S.R.	11.5 gr.
" hispanica	9402	230116	Iran	4.4 gr.
" woronovii	16917	310393	U.S.S.R.	1.4 gr.
DIGITARIA				
eriantha	8141	203344	South Africa	4 gr.
ECHINOCHLOA				
colonum	18868	331385	Ethiopia	26.4 gr.
crusgalli	18653	325314	U.S.S.R.	2.6 gr.
ELYMUS				
aff. alaicus	17557	314676	U.S.S.R.	0.5 gr.
angustus	17553	314672	U.S.S.R.	1 gr.
aralensis	17549	314663	U.S.S.R.	0.8 gr.
arenarius	15050	297344	Norway	7.2 gr.
arenarius	17776	316233	U.S.S.R.	8½ oz.
arenarius	18180	319819	Sweden	4.4 gr.
dahuricus	8948	221900	Afghanistan	20.1 gr.
dahuricus	11520	269892	West Pakistan	2.8 gr.
dahuricus	17555	314674	U.S.S.R.	4.5 gr.
dahuricus	17560	314680	U.S.S.R.	55 gr.
giganteus	17336	313965	U.S.S.R.	62 gr.
junceus	17350	314082	U.S.S.R.	15.5 gr.
junceus	17548	314665	U.S.S.R.	8.3 gr.
junceus	17549	314666	U.S.S.R.	23.3 gr.
junceus	17551	314668	U.S.S.R.	3.6 gr.
junceus	17552	314669	U.S.S.R.	0.8 gr.
paboanus	17777	316234	U.S.S.R. via Australia	50.5 gr.
virginicus	17702	315864	Czechoslovakia	12 oz.
ERAGROSTIS				
bicolor	16048	299907	South Africa	5.4 gr.
chloromelas	18044	208225	South Africa	121 gr.
chloromelas	18049	226070	Kenya	6.5 gr.
chloromelas	18050	234206	South Africa	101.5 gr.
curvula	14832	295700	South Africa	151.5 gr.

GENUS				Amount of
Species	BN No.	PI No.	Original Source	Seed
ERAGROSTIS				
curvula	16921	310403	U.S.S.R.	1 lb., 11+ oz.
ferruginea	12589	283273	Japan via Australia	30.4 gr.
obtusa	7223	344546	South Africa	11.9 gr.
sp.	18870	331391	Ethiopia	1.7 gr.
FESTUCA				
arundinacea	3307	-	South Africa	10.8 gr.
arundinacea	6321	186318	Denmark via Australia	41.9 gr.
arundinacea	7483	198088	Morocco	20.4 gr.
arundinacea	10174	255363	Yugoslavia	30.3 gr.
arundinacea	11061	264766	Netherlands	9 $\frac{1}{4}$ oz.
arundinacea	11238	265352	Netherlands	51 gr.
arundinacea	11244	265358	Netherlands	92 gr.
arundinacea	11417	269850	Tunisia	39 gr.
arundinacea	12593	283277	Portugal via Australia	252 gr.
arundinacea	12595	283279	Israel via Australia	trace
arundinacea	12602	283287	Czecho. via Australia	113 gr.
arundinacea	12604	283289	Germany via Australia	1.2 gr.
arundinacea	12613	283299	Poland via Australia	14 oz.
arundinacea	12615	283301	Tunisia via Australia	trace
arundinacea	17561	314684	U.S.S.R.	62.6 gr.
arundinacea	17562	314685	U.S.S.R.	57 gr.
arundinacea	17563	314686	U.S.S.R.	95.5 gr.
arundinacea	17646	315430	U.S.S.R.	32.2 gr.
arundinacea	17647	315431	Netherlands via U.S.S.R.	160 gr.
arundinacea	17648	315432	U.S.S.R.	125 gr.
arundinacea	17650	315434	U.S.S.R.	137 gr.
arundinacea	17785	316243	Israel via Australia	trace
arundinacea	17786	316244	Sweden via Australia	103 gr.
arundinacea	17787	316245	Morocco via Australia	11 gr.
arundinacea	17788	316246	Morocco via Australia	7.5 gr.
arundinacea	17794	316252	U.S.S.R. via Australia	24.5 gr.
arundinacea	18083	M ₁ -6161	Kentucky via Mo. PMC	41.8 gr.
arundinacea	18512	323256	Australia	3 gr.
mairei	12624	283312	Sweden via Australia	trace
ovina	10509	257740	Hungary via Australia	94.3 gr.
ovina	17504	314523	U.S.S.R.	64.8 gr.
ovina	17791	316249	Spain	147.4 gr.
pallens	12629	283317	Poland via Australia	trace
pratensis	17506	314526	U.S.S.R.	16.9 gr.
pratensis	17507	314527	U.S.S.R.	69.5 gr.
pratensis	17508	314528	U.S.S.R.	59.5 gr.
pratensis	18068	324122	U.S.S.R.	14.3 gr.
pratensis	18196	320558	Finland	5 gr.
rubra	6718	188901	Sweden	47.7 gr.
rubra	8037	237803	Spain	32 gr.
rubra	15546	302999	Netherlands	0.3 gr.
rubra	15547	303002	Netherlands	1.3 gr.
rubra	16985	311406	Spain	91.5 gr.
rubra	16986	311407	Spain	21 gr.
rubra	17663	315448	U.S.S.R.	115.8 gr.

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GENUS	Species	BN No.	PI No.	Original Source	Amount Seed
FESTUCA					
	rub.commutata	4427	158376	New Zealand	89.5 gr.
	" heterophylla	13587	286209	Czechoslovakia	25.3 gr.
	rupicaprina	17793	316251	Sweden via Australia	20.6 gr.
	sabulosa	17353	314085	U.S.S.R.	1.8 gr.
	sclerophylla	17354	314086	U.S.S.R.	24 gr.
	sulcata	17355	314087	U.S.S.R.	121.5 gr.
	sulcata	17461	314375	U.S.S.R.	92.5 gr.
	sulcata	17477	314437	U.S.S.R.	61.7 gr.
	varia	17119	312453	U.S.S.R.	1.2 gr.
HORDEUM					
	bulbosum	1338	106880	U.S.S.R.	11.3 gr.
	bulbosum	10044	205195	Turkey	45.5 gr.
	bulbosum	15623	306731	Greece	2.4 gr.
KOLERIA					
	caudata v.				
	algeriensis	18852	345744	Spain	0.9 gr.
	gracilis	17121	312456	U.S.S.R.	78.5 gr.
	gracilis	17462	314377	U.S.S.R.	18.7 gr.
	gracilis	17463	314378	U.S.S.R.	9.4 gr.
	gracilis	17464	314379	U.S.S.R.	40.5 gr.
	gracilis	17568	314700	U.S.S.R.	4.5 gr.
	polonica	6326	186323	Sweden via Australia	0.7 gr.
	vallesiana	16987	311418	Spain	7.4 gr.
	vallesiana	16988	311419	Spain	17.5 gr.
LASIAGROSTIS					
	caragana	17575	314724	U.S.S.R.	trace
LEPTURUS					
	repens	7801	200229	Kenya	6.9 gr.
LOLIUM					
	multiflorum	18220	321395	Czechoslovakia	33.8 gr.
	multiflorum	18221	321396	Czechoslovakia	9-7/8 oz.
	multiflorum	18246	321679	France	172.5 gr.
	perenne	18247	321680	France	10.7 gr.
	perenne	18248	321681	France	16.1 gr.
MELICA					
	ciliata	17704	315866	Czechoslovakia	6 oz.
ORYZOPSIS					
	miliacea	13728	287906	Spain	47.3 gr.
	miliacea	14419	292449	Israel	trace
	miliacea	14421	292451	Israel	1 gr.
PANICUM					
	amarulum	2258	-	Virginia	2 lbs., 3 oz.
	amarulum	8360	-	Virginia	97 lbs.
	amarulum	18706	-	North Carolina	2 lbs., 5½ oz.
	antidotale	11480	268410	Afghanistan	55.5 gr.
	antidotale	11503	269390	Afghanistan	82 gr.

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GENUS				Amount of
Species	BN No.	PI No.	Original Source	Seed
PANICUM				
antidotale	14710	F-709	Georgia via Florida PMC	185 gr.
antidotale	14711	F-831	Georgia via Florida PMC	47 gr.
antidotale	18863	331180	Argentina	22 gr.
antidotale	19028	338654	Morocco	5.6 gr.
clandestinum	18572	MS-1737	Tennessee	141 gr.
stapfianum	6876	190327	South Africa	93 gr.
virgatum	8354	-	Arkansas	3 lbs., 8-3/4 oz.
virgatum	8624	'Carthage'	North Carolina	3 lbs., 6 oz.
virgatum	9149	NDG-965	North Dakota	56.3 gr.
virgatum	17965	SC-149	South Dakota	86.3 gr.
" v.cubense	18582	sel.	BN-10996 X 10997	4 lbs., 12+ oz.
PAPPOPHORUM				
pappiferum	18858	331155	Argentina	8½ oz.
pappiferum	18900	337554	Argentina	10-3/4 oz.
PASPALUM				
notatum	11573	315734	Cold-hardy sel.	8 oz.
pubiflorum v. glabrum	17963	NC-66-7	Tennessee	70.3 gr.
PHALARIS				
aquatica	11256	266227	Portugal via Australia	19.4 gr.
aquatica	11257	266228	Morocco via Australia	3.3 gr.
aquatica	15624	306732	Greece	trace
aquatica	17678	315602	Israel	4.5 gr.
aquatica	17680	315604	Israel	6 seeds
aquatica	17850	316320	Argentina via Australia	78 gr.
aquatica	17853	316323	Portugal via Australia	82.4 gr.
aquatica	17854	316324	Italy via Australia	38 gr.
aquatica	17855	316325	Irâq via Australia	105.2 gr.
aquatica	17861	316331	U.S.S.R. via Australia	0.8 gr.
"x arund.	3701	150170	Australia	25.3 gr.
"x arund.	10777	316321	Wales via Australia	1.3 gr.
"x arund.	13575	-	BN sel. - tall plts	245 gr.
arundinacea	361	-	Big Flats N.Y. SCN	20.5 gr.
arundinacea	9356	227670	Iran	62.5 gr.
arundinacea	9360	237724	Germany	30.5 gr.
arundinacea	9688	234780	Germany	37 gr.
arundinacea	9690	235023	Germany	6.2 gr.
arundinacea	9739	172443	Turkey	16.2 gr.
arundinacea	9689	234790	Sweden	32.1 gr.
arundinacea	17330	-	Ohio via Fla. PMC	trace
arundinacea	17368	314102	U.S.S.R.	44.2 gr.
arundinacea	17672	315487	U.S.S.R.	36.7 gr.
arundinacea	18186	319825	Norway	3.3 gr.
arundinacea	18783	-	Sel. ex PI-314103	68.3 gr.
truncata	17866	316336	Algeria via Australia	4.3 gr.
tub.v.stenop.	3702	150171	Australia	8.4 gr.
tub.v.stenop.	8103	202480	Morocco	2.8 gr.
tub.v.stenop.	11275	206710	Turkey	30.1 gr.
tub.v.stenop.	17868	316338	Spain via Australia	96.2 gr.

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GENUS				Amount of
Species	BN No.	PI No.	Original Source	Seed
PHLEUM				
pratense	7310	G-17778	Finland via NE-9	trace
pratense	11536	270401	U.S.S.R.	1.8 gr.
pratense	13197	284246	Yugo. via Australia	5 gr.
pratense	13198	284247	Yugo. via Australia	4.2 gr.
pratense	15954	305272	Sweden	trace
PLAGIOCHLOA				
uniola	11906	274083	South Africa	trace
POA				
ampla	13200	284249	Sweden via Australia	6.2 gr.
angustifolia	17466	314390	U.S.S.R.	31 gr.
angustifolia	17577	314734	U.S.S.R.	12.9 gr.
angustifolia	17580	314737	U.S.S.R.	12 gr.
marginata	12924	283958	U.S.S.R. via Australia	trace
palustris	17744	316179	Poland via Australia	6.5 gr.
pilcomayensis	18922	337592	Argentina	0.4 gr.
pratensis	2980	303053	Sweden	19.5 gr.
pratensis	12927	283961	Turkey via Australia	2.3 gr.
pratensis	13589	286212	Czechoslovakia	5 gr.
pratensis	15586	303058	Sweden	59.7 gr.
pratensis	16146	-	India	15.5 gr.
pratensis	17523	314582	U.S.S.R.	26.2 gr.
pratensis	17576	314733	U.S.S.R.	12.5 gr.
silvicola	17397	314174	U.S.S.R.	trace
SECALE				
montanum	10570	257801	Australia	7.5 gr.
SESLERIA				
heufleriana	17370	314105	U.S.S.R.	3.1 gr.
SORGHASTRUM				
nutans	14670	315745	N.Car. via Miss. PMC	3 oz.
nutans	14671	315746	Miss. PMC MS-228	0.5 gr.
SPOROBOLUS				
indicus	16938	310427	U.S.S.R.	95.8 gr.
tenacissimus	16939	310428	U.S.S.R.	124.2 gr.
STIPA				
capillata	16941	310430	U.S.S.R.	13.5 gr.
tenacissima	17711	315875	Czechoslovakia	0.2 gr.
THEMEDA				
japonica	9259	246782	Japan	2 gr.

1969 Seed Production - Legume & Other

GENUS				Amount of
Species	BN No.	PI No.	Original Source	Seed
ALYSICARPUS				
rugosus	3760	150359	India via Australia	0.1 gr.
ALYSSUM				
murale	18104	-	Austria	5 gr.
murale	18111	-	Hungary	14 gr.
AMPELOPSIS				
brevipedunculata v. citrulloides	18527	-	North Carolina	3 gr.
ASTRAGALUS				
asper	17339	314059	U.S.S.R.	7.7 gr.
calycinus	17454	314357	U.S.S.R.	1.2 gr.
cicer	7866	214095	Spain	116 gr.
falcatus	7865	263231	Spain	51.5 gr.
falcatus	9188	NDL-86	N.Dakota	36.5 gr.
falcatus	14541	292788	Sweden	105 gr.
galegiformis	6285	186282	Malta via Australia	83.5 gr.
glycyphyllos	2588	123442	France	45.5 gr.
glycyphyllos	7877	263234	Spain	15 gr.
glycyphyllos	18178	319817	Norway	221.5 gr.
glycyphyllos	18179	319818	Norway	106.5 gr.
glycyphyllos	18622	325207	U.S.S.R.	1 gr.
interpositus	17343	314065	U.S.S.R.	1 gr.
sp.	2591	121096	Turkey	6 gr.
sp.	3648	150557	Kansu, China	0.5 gr.
CAREX				
bordzilovskii	17456	314365	U.S.S.R.	trace
verna	17457	314366	U.S.S.R.	trace
CASSIA				
hirsuta	9266	247405	Congo	6 gr.
uniflora	6691	188874	Guatemala	14.5 gr.
CLITORIA				
ternatea	12555	283237	Cuba via Australia	17 gr.
CORONILLA				
varia	11032	-	Loudon Co., Tenn.	37 gr.
varia	16331	308009	Czechoslovakia	8.7 gr.
CYTISUS				
supinus	9373	315688	Rochester Parks	1 gr.
DESMODIUM				
axillare	17096	312172	Mexico	4 gr.
canadense	7894	263237	Spain	1.4 gr.
tortuosum	5835	-	Guatemala	1.9 gr.
tortuosum	18761	-	Ex BN-5835	trace
HIPPOCREPIS				
unisiliquosa	18227	321406	Israel via Australia	5.5 gr.

1969 Seed Production - Legume & Other

GENUS	Species	BN No.	PI No.	Original Source	Amount of Seed
LATHYRUS					
	canescens	10184	255366	Yugoslavia	4.5 gr.
	latifolius	1173	-	Maryland	110 gr.
	latifolius	6037	-	Colorado A-10764	36.5 gr.
	latifolius	8562	-	Tennessee	18 gr.
	latifolius	16300	-	N.Car. & Tenn.	78 gr.
	latifolius	16453	-	Vol. at NPMC	114 gr.
	" v. splendens	6038	-	Colorado	220 gr.
	maritimus	4320	315704	Oregon	1 gr.
	sylvestris	2753	-	Washington P-7055	221 gr.
	sylvestris	6979	-	Iowa	74 gr.
	sylvestris	12066	-	commercial (Wash.)	140 gr.
	sylvestris	12434	282562	France	47 gr.
	sylvestris	12445	282765	Netherlands	113.5 gr.
	sylvestris	13986	290715	England	120 gr.
LESPEDeza					
	bicolor	2279	-	'Natob'	38 lbs. CS
	bicolor	14895	-	Del. Sel. Strain #1	2 lbs., 2+ oz.
	bicolor	18011	318637	Korea	15 lbs.
	cuneata	11400	-	BN selection	116.2 gr.
	cuneata	14651	-	Cope-Henson polycross	20 lbs +
	cuneata	18012	318618	Korea	1 lb +
	cuneata	18069	-	'Hi-way' (Interstate)	1 lb., 9 $\frac{1}{4}$ oz.
	cuneata	18243	-	New York - NY-4570	6 lbs +
	cuneata	18581	-	BN sel. - early	5 lbs, 7 oz.
	cyrtobotrya	1909	-	Chatham, Va.	10 $\frac{1}{2}$ oz.
	daurica	3912	151357	China	305.8 gr.
	X divaricata	18013	318369	Korea	311.5 gr.
	hedysaroides	7146	193950	Japan	134 gr.
	inschanica	18014	318640	Korea	526 gr.
	jap.intermed.	3532	-	BN selection	81 lbs. CS
	jap.intermed.	3532	-	BN selection	122 lbs in hull
	macrocarpa	14786	295324	Japan	41 gr.
	maximowiczii	2230	-	Arnold Arboretum	86.5 gr.
	nikkoensis	14787	295325	Japan	4.8 gr.
	penduliflora	13630	286481	Japan	55.8 gr.
	penduliflora	13630	286481	separate - white flower	2.8 gr.
	repens	15539	-	Maryland	5 lbs CS
	repens	15539	-	Maryland	57 lbs in hull
	serpens	15034	297385	Japan	66 gr.
	tomentosa	18015	318641	Korea	167.5 gr.
	sp.	18269	-	Korea	1 lb., 11 oz.
LONICERA					
	maackii				
	erubescens	17142	-	N.Y. Bot. Gardens	41 gr.
LOTUS					
	caucasicus	17358	314090	U.S.S.R.	10.7 gr.
	caucasicus	17484	314930	U.S.S.R.	49.5 gr.
	corniculatus	3197	-	Virginia	1.7 gr.

1969 Seed Production - Legume & Other

GENUS				Amount of
Species	BN No.	PI No.	Original Source	Seed
LOTUS				
corniculatus	6249	-	Washington P-8781	0.6 gr.
corniculatus	7117	193725	Sweden	0.4 gr.
corniculatus	7289	196539	Italy	20.5 gr.
corniculatus	12828	283261	Hungary via Australia	2.5 gr.
corniculatus	13540	285278	U.S.S.R. (Estonia)	1.5 gr.
corniculatus	13550	-	Maryland - NY-3372	12.6 gr.
corniculatus	13935	290376	Hungary	0.5 gr.
corniculatus	15978	305508	Italy 'Ginestrino'	0.1 gr.
corniculatus	17667	315452	U.S.S.R.	14.1 gr.
corniculatus	17668	315453	U.S.S.R.	2.3 gr.
corniculatus	17669	315454	U.S.S.R.	2.4 gr.
corniculatus	17805	316268	Uruguay via Australia	9.1 gr.
corniculatus	17806	316269	Hungary via Australia	19 gr.
corniculatus	13934	290375	Hungary 'Vilmorin'	4.2 gr.
" ciliatus	7905	246730	Spain	7.3 gr.
pedunculatus	7145	194059	Holland	4.8 gr.
pedunculatus	8972	202383	Chile	4 gr.
pedunculatus	16359	308037	Czechoslovakia	6.2 gr.
pedunculatus	17810	316273	Portugal via Australia	36 gr.
pedunculatus	17811	316274	N.Zealand v. Australia	12 gr.
strictus	15505	300015	South Africa	83 gr.
tenuis	7129	-	F&RRB, ARS	9.5 gr.
tenuis	7915	246738	Spain	2 gr.
tenuis	7916	246739	Spain	0.3 gr.
tenuis	8863	-	BN selection	5 gr.
tenuis	17807	316270	U.S.A. via Australia	6 gr.
tenuis	18579	344045	contam. ex PI-216269	0.7 gr.
LUPINUS				
luteus	5887	-	Guatemala	20 gr.
luteus	5915	181588	Guatemala	62.5 gr.
varius	7389	197574	Australia	33 gr.
MEDICAGO				
falcata	6957	-	S.Dakota, NDL-50	0.4 gr.
falcata	8552	-	Alaska	1.5 gr.
falcata	10775	260993	U.S.S.R.	0.1 gr.
falcata media	4656	-	So. Dakota	0.4 gr.
soleirolii	10601	258399	South Australia	99.5 gr.
tianschanica	12866	283660	USSR via Australia	14 gr.
tribuloides	12867	283661	Cyprus via Australia	24.5 gr.
MELILOTUS				
alba	7617	198965	Cyprus	23 gr.
alba	7932	-	Spain	0.7 gr.
alba	8390	-	Washington	25.5 gr.
altissimus	13946	290387	Hungary	39.5 gr.
leucanthus	13949	290390	Hungary	44.5 gr.
officinalis	5873	-	Washington	1.4 gr.
officinalis	6994	-	Massachusetts	60 gr.
officinalis	7933	315717	Spain	83.5 gr.
officinalis	13809	289313	Hungary	167.5 gr.
officinalis	17362	314096	U.S.S.R.	2 lbs., 1½ oz.

1969 Seed Production - Legume & Other

GENUS	Species	BN No.	PI No.	Original Source	Amount of Seed
POTENTILLA					
	recta	15076	297370	Norway	0.4 gr.
	recta	18778	314474	U.S.S.R.	0.1 gr.
PRINSEPIA					
	sinensis	8407	-	Morton Arboretum	105.5 gr.
RHAMNUS					
	dahuricus	2389	-	Woodward, Okla.	113.5 gr.
	utilis	16933	310419	U.S.S.R.	21.3 gr.
ROSA					
	micrantha	17708	315871	Czechoslovakia	26 gr.
	wichuraiana	19506	235435	Japan	11 gr.
	v.poteriifolia				
SANGUISORBA					
	minor	15205	297947	U.S.S.R. via Australia	47.5gr.
	officinalis	17130	312470	U.S.S.R.	0.1 gr.
TEPHROSIA					
	virginiana	11059	315715	Tennessee	26.5 gr.
TETRAGONOLOBUS					
	siliquosus	16942	310431	U.S.S.R.	0.3 gr.
TRIFOLIUM					
	ambiguum	12957	283999	U.S.S.R. via Australia	22.5 gr.
	ambiguum	12961	284003	Turkey via Australia	0.4 gr.
	ambiguum	12962	284004	Turkey via Australia	5 gr.
	ambiguum	12963	284005	Turkey via Australia	2.5 gr.
	elongatum	14731	253200	Yugoslavia	30.5 gr.
	fragiferum	4349	-	N.Y. PMC NY-2840	2.9 gr.
	fragiferum	17490	314938	U.S.S.R.	0.1 gr.
	fragiferum	17876	316347	Afghan. via Australia	8.6 gr.
	fragiferum	17881	316352	U.S.S.R. via Australia	14 gr.
	fragiferum	17882	316353	U.S.S.R. via Australia	0.2 gr.
	hirtum	10927	-	BN selection	34.5 gr.
	hirtum	10933	-	BN selection	58.5 gr.
	hybridum	6721	188904	Sweden 'Svea'	5 gr.
	lagopus	10926	-	BN selection	32 gr.
	medium	14530	284621	New Zealand	0.1 gr.
	medium	15087	297381	Norway	0.1 gr.
	megalanthum	15247	297989	Chile via Australia	0.2 gr.
	nigrescens	9519	120186	Turkey	14.5 gr.
	nigrescens	10931	-	ex PI-120103	1.2 gr.
	pallidum	8811	238369	South Australia	0.6 gr. (field)
	pallidum	8811	238369	South Australia	12.3 gr. (Greenhouse)
	parviflorum	10930	-	Sel. ex PI-120219	49 gr.
	pratense	16946	310462	U.S.S.R.	11 gr.
	pratense	17028	311488	Spain	30.5 gr.
	pratense	17031	311491	Spain	0.4 gr.

1969 Seed Production - Legume & Other

GENUS				Amount of
Species	BN No.	PI No.	Original Source	Seed
TRIFOLIUM				
pratense	17032	311492	Spain	7 gr.
pratense	17489	314937	U.S.S.R.	0.8 gr.
repens	5428	-	commercial	20.1 gr.
repens	17034	311494	Spain	1 gr.
repens	18546	340658	ex PI-314936	2 gr.
sariosense	14580	292827	Sweden	trace
sp.	9494	120153	Turkey	18.3 gr.
sp.	10938	-	Turkey - BN selection	49.5 gr.
sp.	10939	-	Turkey - BN selection	17 gr.
sp.	10947	-	Turkey - BN selection	16.5 gr.
sp.	11569	-	Turkey - BN selection	23 gr.
TRIGONELLA				
arabica	18814	330684	Israel	0.5 gr.
VICIA				
acutifolia	17899	316683	Florida	44.5 gr.
amurensis	16342	308020	Czechoslovakia	13 gr.
amurensis	16416	308094	Czechoslovakia	2 gr.
benghalensis	13834	289479	Hungary	98 gr.
benghalensis	15268	298011	Portugal via Australia	129 gr.
dumetorum	13590	268212	Czechoslovakia	4.4 gr.
dumetorum	16423	308101	Czechoslovakia	21.2 gr.
floridana	17900	316684	Florida	1 gr.
galatea	18956	-	Israel	4 gr.
humilis	18957	343008	Mexico	9 gr.
hybrida	14473	292504	Israel	27 gr.
litinovii	18960	-	U.S.S.R.	10 gr.
melanops	18962	-	U.S.S.R.	66.5 gr.
ocalensis	17901	316685	Florida	36 gr.
pannonica	13841	289486	Hungary	8 gr.
pisiformis	16439	308117	Czechoslovakia	6 gr.
pisiformis	17381	314124	U.S.S.R.	309.5 gr.
sativa	13053	284096	Bulgaria via Australia	240 gr.
sativa	13054	284097	Argentina via Australia	192 gr.
sativa	13408	284457	Bulgaria via Australia	109.5 gr.
sativa	13413	284462	Bulgaria via Australia	37 gr.
sepium	16441	308119	Czechoslovakia	2.5 gr.
tenuifolia	17910	314766	U.S.S.R.	5 pods
sp.	19209	-	ex PI-289486, Hungary	34.5 gr.

